THE FAR EASTERN REVIEW

COMMERCE ◉ ENGINEERING ◉ FINANCE

VOL. V. MANILA, P. I., SHANGHAI, AND YOKOHAMA, APRIL, 1909 No. 11.

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President of the South Manchuria Railway Company

THE FAR EASTERN REVIEW
GEO. BRONSON REA, M. E.
PUBLISHER
WILLIAM CROZIER, Editor.

COMMERCE :-: ENGINEERING :-: FINANCE

A Monthly Review of Far Eastern Trade, Finance and Engineering, Dedicated to the Industrial Development and Advancement of Trade in the Philippines and Far Eastern Countries

PUBLICATION OFFICE:
MANILA, PHILIPPINE ISLANDS

CHINA OFFICE
WHITEAWAY LAIDLAW BUILDING
Shanghai

UNITED STATES REPRESENTATIVES:
J. ROLAND KAY CO.
Teutonic Building, Chicago, Ill.

GREAT BRITAIN:
PROBSTHAIN & CO.
14 Bury Street British Museum, London, W. C.

SUBSCRIPTION AGENTS:

HONGKONG	KELLY & WALSH, LTD.
SINGAPORE	" " " "
YOKOHAMA	" " " "
SHANGHAI	" " " "
TIENTSIN	TIENTSIN PRESS, LTD.
WASHINGTON, D. C.	BRENTANO'S.

SUBSCRIPTION RATES: Philippines, United States, Canada, and Mexico, $2.50 U. S. C. per year. To all other countries in the Postal Union, $3.00 per year. Single copies 25 cents, U. S. C.

ADVERTISING RATES will be mailed on application.

Communications pertaining to the Editorial Department should be addressed to THE EDITOR.

ENTERED AT POST OFFICE, MANILA, P. I., AS SECOND CLASS MATTER.

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THE SOUTH MANCHURIA RAILWAY

(AN APPRECIATION.)

(By Our Own Correspondent.)

Newchwang, December 27th, 1908.—The South Manchuria Railway, the only tangible asset left to Japan as a result of her victory over Russia; a railroad with the bridges dynamited, the rolling stock deteriorated, the stations demolished, the roadbed destroyed, its trade paralyzed, in fact, an utterly hopeless industrial wreck; this is the picture of the war-scarred road as it came to Japan, a road which, in its short history, has passed through all the gamut of legitimate railway adversities, and a storm of invective and abuse which would have swamped any ordinary enterprise.

The South Manchuria Railway.—Who has not heard of it, by its many synonyms! "The tentacle of the Octopus," "the strangler of trade," "the secret rebater," "the wicked discriminator," "the absorber of Manchuria," "the cunning agent of Japan's designs on China," "the ungrateful corporation which borrows money from its ally to spend it in America," "the soulless monopoly which exacts all and gives nothing in return," "the bar to further extension of Chinese railways," "the land grabber," "the mine robber,"—all these and some more added, according to the viewpoint and the supply of superlatives, sum up the popular foreign conception of this enterprise.

The South Manchuria Railway under former administration, especially under military rule, had many faults and drew on itself much deserved criticism. If there were anything the unskilled military operators omitted doing, if anything went wrong, if a porter or conductor looked crosseyed or a railway guard practised his poor English on the unsuspecting traveler in his desire to perfect his accent, or the soldier responded "Wakarimasen" to the crude efforts of the traveler to speak Nipponese, or anything else under the sun happened to the occasional traveler in the military zone, it was all wicked and intentional. Forthwith, the irate and insulted foreigner wrote a letter to his favorite newspaper in the treaty ports to prove that the wily Japanese and slippery allies were not playing the game, or carrying out the spirit of the alliance.

Were there a shortage of cars, it was charged up to deliberate discrimination. If the Japanese merchant at Newchwang or Dalny had his freight handled first, it were an imposition on equal rights and opportunity. Because the road preferred to haul freight to Dalny, 162 miles further than Newchwang, at the same rate to develop its own property, it was an unpardonable crime against the vested interests of the icebound port of Newchwang; because the directorate has two members formerly of the Mitsui's, ergo, it established conclusively the Mitsui's freight would have preferential treatment. But why prolong the tale of alleged iniquities of the sinful company! If a list were printed of all the crimes and irregularities which a soulless corporation might practice, and a composite photograph taken of the whole, the only suitable legend, according to the critics, would spell out THE SOUTH MANCHURIA RAILWAY COMPANY.

And the company, during all this torrent of criticism and abuse, has kept quietly at work "sawing wood." To paraphrase the remark of the late Speaker Reed, it has "stood silent, mute, speechless, dumb, and, in addition to this, it has not been saying a word."

My impressions of the "Octopus" were in line with the above before making a visit to Manchuria. After two months spent traveling throughout the Three Eastern Provinces, studying conditions and receiving first hand impressions, my viewpoint has been altered, and it may be that the devil is not so black as he is painted. While there is still considerable legitimate criticism which may be directed against the Japanese policy in Manchuria, I am safe in stating that, to-day, an impartial, unprejudiced observer who sees for himself, and draws his own conclusions, refusing to be guided by those who have axes to grind, can find no legitimate cause for complaint with the operation of the road as a public carrier. Eliminating international politics and friction with China, which will always be present while Japan controls the road, and confining comment to the railway and its work, there is much to be said in favor of the company, and praise for its enterprise. The administration has encountered and overcome obstacles, which reflect the highest credit on the officials, and has pursued its work, in the face of public distrust and hostile criticism, to a successful completion. The administration is entitled to the reward for its labors, and it ill becomes even its most bitter poltical and commercial opponents to withhold just recognition and praise for what it has accomplished.

When the South Manchuria Railway Company was organized, and the property taken over from the military authorities, it was a poor apology for a commercial road. The Russians, in their retreat, had destroyed the roadbed, dynamited the bridges, burnt the stations, withdrew the rolling stock, and did everything possible to make the line useless to the enemy.

The Japanese army had to relay the track to narrow gauge to suit the cars and engines hurriedly loaned by the Japanese lines, rebuild the bridges temporarily, repair the stations, and make herculean efforts to meet the enormous demands on its equipment to supply the immense army in the North. The road was constantly taxed beyond its capacity, and this condition prevailed until after evacuation. It was natural that the bulk of the freight should consist of military stores and vast quantities of Japanese products for their men, and it follows that a large amount of this merchandise found its way into the native stores.

With a limited equipment of rolling stock, narrow gauge at that, hardly sufficient to cope with their own traffic, is it any wonder that at times the foreign shipper at Newchwang could not get a car while his Japanese competitor could? This may be an infringement on the doctrine of equal rights, but it is human nature, and all the conventions and treaties in the world cannot provide against such a situation.

It was at this early stage of the road's history under Japanese administration that the cry of discrimination against shippers was first heard, and it continued over the entire period that the company was making gigantic efforts to widen its track, import new cars, and place itself in a position to handle the immense volume of freight. Criticism at such a time was of course admittedly unfair. Again, the most persistent and emphatic note of protest arises from the fact that the railway company, in order to build up its own terminal at Dalny in the leased territory, charges the same rate to the port that is made to Newchwang. Here is an interesting question which has many sides to it, but all we hear is the cry of Newchwang that it is being discriminated against and that such treatment is a violation of equal opportunities.

Dalny, the terminus of the road, is an ice-free port; Newchwang, the natural port of Manchuria, which formerly held a monopoly of the trade, is closed by ice for at least four months of the year. The latter port is the headquarters for foreign firms engaged in the Manchurian trade and has large vested interests, particularly British. The distance by rail from Newchwang to Dalny is 162 miles.

The freight rates on the South Manchuria Railway from the terminus at Changchung to either port is the same—yen 16.30 per ton on 1st class freight, 13.80 on 2nd class, 11.30 on 3rd class, and 8.80 on 4th class, while the car load rate is yen 13.50 for 1st, 11.00 for 2nd, 8.50 for 3rd, and 6.00 for 4th class.

The Newchwang merchants protest against the discrimination in favor of Dalny whose prosperity will be at their expense. But there is another side to the question. The great bulk of Manchuria's exports, in the shape of bean cake, go to Japan, whether shipped from Dairen or Newchwang, and the trade is largely in the hands of Japanese. The railway company, in order to build up its line and port, carries this immense amount of freight 162 miles further at the same rate. If the rate between Changchung and Newchwang is a legitimate one, it is evident that the extra haul must be at a loss to the railway. The rates between Mukden and Newchwang, where the Imperial Chinese Railway come in competition with the Japanese line, are almost equal, which would indicate that the tariff throughout is based on fair returns.

In criticising the Japanese road for its discrimination against Newchwang, the interests of the shipping seem to have been lost sight of altogether. Just at a time when the producer must sell his crop, the port of Newchwang closes for the winter. Formerly, when this port monopolized the trade, there was no other remedy, and, willynilly, the traffic went to Newchwang to be stored in the godowns of the big hongs until navigation opened. With the opening of the railway and the outlet to the ice-free port of Dairen, the crop movement is facilitated, the farmer secures immediate value for his crops, and the Japanese market receives its beancake in time for fertilizing the ground for Spring planting. The loser is the Newchwang merchant who is deprived of his storage profits and income from handling the freight.

These facts are of course ignored by the vested interests of Manchuria and they call attention to the wickedness of the sly Japanese to arouse public sentiment against them. This is legitimate propaganda, but up to the present, while we have heard nothing but denunciation of Japan's policy, no one has pointed a way out of the difficulty. Would they have the South Manchuria Railway Company raise the freight to Dalny for the benefit of Newchwang during the summer months, and hold the same high tariffs during the winter months to the detriment of the shipper and the market while Newchwang is closed tight?

The tariff between Newchwang and Dalny ranges from Yen 8.10 per ton to yen 4.50 per ton regular and from yen 6.60 to 3.00 on car load lots. In this respect the South Manchuria Railway is like all souless corporations, and consults its own interests first, and these lie in Dairen. It's really remarkable how the Japanese have absorbed foreign ideas and tactics along with other good things.

Perhaps the European railway corporations are truly altruistic and never operate to their own advancement, but in America there are many similar cases to Newchwang and Dalny. If a railroad desires to build up its own terminal port, and charges reduced rates to the shipper for the privilege, the other ports may criticize and condemn, but that's all. The situation in Manchuria is similar, but what are you going to do about it?

Treaties have nothing to do with the case in point. Alliances, the open door, equal opportunities and all other conventions cannot alter the situation. There is only one remedy and that is for China to repurchase the line from Japan as soon as possibe, but that only solves the political side of the question. The situation of Newchwang under any management having the interests of the company at stake must always be the same, and as the years go by, instead of improving, it will grow worse. The immense future import and export trade of Manchuria will never be controlled by a port that lacks open communication the year round.

The heyday of Newchwang's prestige and prosperity is past. Any impartial observer not blinded by prejudice can read the handwriting on the wall. Cart traffic in winter and river junks in summer will postpone the inevitable day, but sooner or later the port will dwindle and lose its prominence. Both native politics and the railroads operate against it. The most important question now before the port is the conservancy of the Liao River, and a petition from the Chamber of Commerce and the Consular Body has been sent to the Viceroy asking that steps be taken to safeguard the waterway. The river is silting up and the junk-borne traffic from the upper reaches of the Liao is threatened. This in itself constitutes a grave danger to the commercial prominence of the port. This work, unlike the conservancy projects of Tientsin and Shanghai, will have to be undertaken by the Chinese authorities, and their hearty co-operation to preserve the vested interests of foreigners is well known.

The Chinese government has engaged the services of a well-known engineer, Mr. Hughes, to study and report on a certain harbor west of Newchwang which will be ice-free and open the year round. This gentleman is at present conducting a survey and making observations. A new port will then be opened and made the terminus of the Imperial Railway of North China, as an outlet for the winter traffic of such part of Manchuria as comes under the influence of that road. What of Newchwang then?

Perhaps the Chinese government will be guided by altruistic motives and contribute large sums to the conservancy of the Liao, for the perpetuation of foreign vested interests in Newchwang, and abandon the project for an ice-free port, in which all the property will be under its control. May be, but not very likely. The Chinese Government, like the Japanese Government, has absorbed a few ideas from foreign soulless corporations. If this project goes through, as appears probable, the foreign interests of Newchwang will be, between the Rising Sun and the Dragon, scorched on the one hand and bitten on the other. And then the discrimination we hear so much about on the side of Japan will have to be shouldered also by China, for if this port is to be built for political purposes to offset Dalny and be under the management of the Imperial Railways of North China, a government concern, it is natural to suppose that the Imperial Railway management will offer some inducement to shippers to build up the new Chinese port and make a profit on the expenditure. It's really up to Newchwang to protest.

But I am wandering away from the subject of this article, the original discriminator, etc., and have only digressed to point out how utterly wicked is the action of the South Manchuria Railway in its attitude towards Newchwang.

In the matter of car discrimination, here again the Japanese Railway Company was found guilty in the past, but there was a plausible reason as noted above. The car equipment was insufficient for the demand, and naturally the big Japanese firms who supplied the army had the preference. That was the first concern of the road, and of course considerable merchandise of Japanese origin found its way to the market, to the exclusion of other foreign goods. Here was a problem for the altruist to work on. Dalny was practically closed to foreign trade during military occupation.

The wharves were occupied by vessels carrying material for the army and the railway. Naturally every car that could be spared went to Dalny, and as there were no foreign houses in business, spare cars were loaded with Japanese merchandise products for the Manchurian market. Of course this was wrong, and opposed to all the ethics of brotherly love, equal rights, etc. The Japanese, although they were making desperate efforts to import new equipment for the standard gauge, and incurring heavy debts to purchase cars and locomotives, should have consulted the interests of foreigners in Newchwang, and spent millions or so in extra narrow gauge cars to handle their business, only to be later thrown away. The wharves at Dalny should have been cleared of vessels carrying heavy railway material for the road and room made for ships carrying foreign goods for the Manchurian market.

In our imagination, we can see the American, British, or other governments assuming this unselfish attitude under the same conditions.

At the same time, the passenger cars were also inadequate, small, stuffy, narrow gauge boxes, devoid of ventilation, refrigerators in winter and the other extreme in summer. Columns have been written about these awful conditions and impositions on the travelling public. The conductors were surly and impatient, the porters were rude, and the guards were overbearing and insulting. If there were any good feature about the road, it was overlooked entirely by the ever ready letter writer who signed his initials to the stuff sent to his favorite paper in the treaty ports of China.

And during all this time, the South Manchuria Railway officials said little, but redoubled their energies. An occasional defense was offered by their friends in Japan and elsewhere, but these of course emanated from subsidized organs, and were not worthy of credit. No, the pendulum had swung too far the other way. Nothing could alter the conviction of the average foreigner that Japan was not playing the game.

And now what is the situation. To-day the railway has been standardized throughout. Luxurious Pullman sleeping and dining cars and day coaches are at the service of the traveller. Hundreds of freight cars and locomotives are in operation; bridges have been rebuilt, stations remodeled, hotels are being constructed. An army of courteous employees have been trained and are now in attendance and the road and its service brought up to the highest standard. Everybody, it would seem, would be happy, but no, there is still trouble. The railway company is an ungrateful corporation. It borrowed its millions from London receiving about 95 and paying 6% and of course giving ample security, and then turns round and proceeds to spend the money in America.

The ubiquitous letter writer again works overtime to tell his troubles to his treaty port paper. He growls at the service, and the American Pullman is the last straw. The latest effusion to a Shanghai daily sums up the situation:

"In any case, and under the best conditions, a railway that deliberately exposes passengers to the unnecessary horrors and discomfort of the American corridor-bunk system, when all civilized people, unfettered by trusts and emigrant traditions have adopted sleeping cars that permit of quiet and privacy, owes an explanation to the public at large.

"And when you come to think of it, why should British capital have been spent by the South Manchuria Railway in introducing these trans-Atlantic atrocities?"

Why! indeed! we echo, and, immediately, the chorus from an old music hall ditty runs through my mind:

"I owe tin dollars to O'Grady,
He thinks he has a mortgage on me life,
He comes around to see me every mornin',
And at night he sinds his wife."

Nothing can satisfy the earnest growler who is looking for trouble.

Here was a situation where a railway needed cars, needed locomotives, needed everything, and needed everything quickly to cope with the traffic and appease the critics. It borrowed the money in London, paying good interest, and giving good security, and then looked round to see where it could get the equipment delivered in the shortest possible time. British builders could do it, in fact wanted to do it, offered to do it, but time was the essential quantity, and the contracts went to America where the material was either on hand or could be delivered quickly. Not that the material was any better. American material never did amount to anything outside the American continent, and it is really remarkable how the railroads there can operate over immense distances with the miserable equipment they use.

The Japanese made an awful blunder here and nearly broke up the alliance. But there is this satisfaction for the critics. The equipment purchased in America is of course very inferior and will soon wear out. The South Manchuria Railway Company will then have to borrow a few more millions and with plenty of time for delivery it will of course purchase really serviceable cars and locomotives and bring about a rapprochement with the disgruntled ones.

But here I am digressing again, and wandering from the subject of the wicked discriminator, etc., etc. All this discrimination in cars is of course ancient history. What is the situation to-day? The writer has made many anxious inquiries throughout Manchuria trying to secure evidence of this crime of car discrimination, but without success. Everybody is being served as rapidly as possible, and, in Newchwang particularly, the railway company seems to be striving to gain the good will of the foreign shipper.

The most serious charge against the road was an incidental remark from the Newchwang manager of the greatest corporation in the world, the so-called original "Octopus," who claimed that he had to pay his freight in advance while the Mitsui and others had a current account payable every two weeks or monthly. This, of course, is unfair competition, and real discrimination against the poor old Standard

Oil Company which needs the money, and it is probably keeping the good people at 25 Broadway awake nights.

And speaking of the Mitsui firm, it is also claimed that the house has two of its men on the Board of Directors, and the natural inference is that the Mitsui's freight receives preferential treatment, and again we have the cry of discrimination from freight shippers. It is a fact that two of the best men of the house of Mitsui are directors of the railway, and from personal observation it might easily be concluded they were evidently placed there because of their business qualifications and fitness for the job. The fact is lost sight of, that the South Manchuria Railway Company is a stock company, also that the House of Mitsui is the strongest, wealthiest, and most influential concern in Japan. Its ramifications are many, and it is represented in some of the leading industrial concerns in Japan besides being allied with other strong aggregations of capital.

When we stop to consider that only Japanese or Chinese can hold stock in the company and the Chinese refrained from subscribing it left the stock to be taken up in Japan. It occurs to us as a logical inference that the House of Mitsui, being the strongest firm in Japan and allied to many other large corporations, subscribed for and now control a certain proportion of the stock, and it is not unlikely that the house has adopted the well-known foreign custom of having theirs hares represented on the directorate. This is really unpardonable on the part of the Mitsui people, and the practice should be discontinued and discouraged. Such tactics might be tolerated or overlooked elsewhere, but it is positively wicked for those so young at the game to ape their elders.

And now we come to the real bona fide out and out old time discrimination. It is a hard nut to crack, a difficult problem to solve. In America they are still pondering over the subject and striving to down the rascally corporations. The Americans thus have troubles of their own, while out here, the same question becomes mixed up with the open door, equal opportunities, sovereign rights, etc., until it becomes so confused that it takes on the status of a casus belli, or something as bad.

The South Manchuria Railway Company owns a coal mine at Fushun. At least it is in possession. And this is one of its principal assets. It's a long story about the coal mine, but to clear up matters it ought to be presented. The Chinese say it belongs to them. The original concession was granted to two Chinese merchants. One was a good business man and the other was not, so the one that was not sold out to the one that was and became eliminated from the enterprise. The good merchant operated the mine and sold his product at Mukden and neighboring towns, making a good profit. Then came the Russian railway and its companion, the Bank, and the miner sold his coal to the railway at a good profit. But the water came up in the shaft and prevented operations until pumps could be secured. The Russo-Chinese Bank loaned the miner about 40.000 roubles with which to purchase pumping machinery and restore the mine to a working basis. One of the guarantees for the loan was that the superintendent and other principal employees should be Russians, to which the Chinese owner acceded. And then work was resumed, more coal produced, and a good market found with the railway.

Then came the war, and the retreat of the Russians. When the Japanese advance reached the mine, they found Russians in charge and coal ready for the use of the railway.

Now the Japanese simply say that the mine was being worked by Russians, supplying coal to the Russians. They found Russians there when the army arrived, and therefore the mine was Russian, and so belongs to the Japanese as spoils of war. The Chinese government has remonstrated and attempted to submit the question to arbitration. The Japanese Government simply refuses to discuss the matter and says in effect to China, "You cannot prove to us that the mine was not Russian."

In the meantime the mine is made part of the Government assets in the South Manchuria Railway Co. and forms part of the security for the loans for the reconstruction of the road. The equipment of the mines has been increased to secure an output of 3,000 tons a day, and the railway is being double tracked to handle the enormous tonnage. So far as Japan is concerned, it is apparently a closed incident, and what is China going to do about it?

Now the important phase of the situation is that Japan has a coal mine, on which she has spent millions, and expects to secure commensurate profits. The mine is a part of the railway and here comes the old, old story. What chance has any other coal mine along the railroad of competing? There are other mines at Liaoyang, but it is cheaper to ship by cart than by railway. There are other mines but their product is debarred from competing with the railway mine. When we remember that railway companies operating coal and iron mines in America have discriminated against the independent operator until the matter was made the subject of congressional investigation, and even today there is small chance of a square deal under such conditions, we can appreciate the situation in Manchuria where there is no supreme law but that of the stronger to insure fair treatment.

This matter has not yet reached an acute stage in Manchuria for the independent mines are a few small Chinese affairs, but the seeds are planted for a crop of trouble in the future, and the world will again hear of discrimination, to which will be added rebates and all the other corporation crimes in restraint of trade.

As to rebates, this is another sore point for the foreign shipper. You can hear various statements about secret rebates to favored Japanese firms. Perhaps they are true. I have heard of secret rebates before. So has everybody in the United States and out of it. It is taken for granted that many of the largest trusts have been fostered and nourished on this system and have used their advantage to cripple the independent or small producer. It is deplorable that the Japanese should so far forget themselves to adopt a habit which is very bad form now in the United States. The trouble has always been the impossibility of securing evidence to convict. The Sherman law in America keeps the rebaters hustling nowadays to devise new evasions. The same situation exists in Manchuria. The average foreigner or Chinese merchant will confide to you that the big Japanese firms are receiving secret rebates, but it is extremely difficult to secure corroborative evidence. In fact, I know that this matter was thoroughly investigated by a foreign government official in Manchuria who reported to his superiors that no proof could be brought to support the allegation.

The Railway Company gives rebates to any firm whose freight bills exceed yen 100,000 per annum. The printed regulations concerning rebates are printed for public distribution and we quote from them the rates to and from Dairen, in regard to Liaoyang, Mukden, Tiehling, and Kwan Chentze and to and from Ying-kau to Dairen, Liaoyang, Fengtien, Tiehling, and Kwanchentze as follows:

TO AND FROM DAIREN:

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 8.10	G. Y 6.90	G. Y 5.70	C. Y 4.50
Feng-tien (Mukden)....	9.40	8.00	6.60	5.20
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80
Yin-kau Newchwang.	8.10	6.90	5.70	4.50

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Liao-yang.	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Feng-tien (Mukden)....	7.70	6.30	4.90	3.50.00
Tiehling ...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu.....	13.50	11.00	8.50	6.00
Yinkau Newchwang.	6.60	5.40	4.20	3.00

TO AND FROM YING-KOU (NEWCHWANG):

"TON" RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen....	G. Y 8.10	G. Y 6.90	G. Y 5.70	G. Y 4.50
Liao-yang.	3.90	3.30	2.70	2.10
Fengtien..	7.15	6.05	4.95	3.85
Tiehling...	10.00	8.50	7.00	5.40
Kwang-Cheng-tzu.....	16.30	13.80	11.30	8.80

CAR-LOAD RATE (per ton)

	1ST CL.	2ND CL.	3RD CL.	4TH CL.
Dairen...	G. Y 6.60	G. Y 5.40	G. Y 4.20	G. Y 3.00
Liao-yang.	3.30	2.70	2.10	1.50
Fengtien..	6.05	4.95	3.85	2.75
Tiehling...	8.50	7.00	5.40	3.90
Kwang-Cheng-tzu	13.50	11.00	8.50	6.00

Regulations Concerning Rebates.—ART. I. The South Manchuria Railway Company will allow rebates at the following rates to any one person or firm who pays a sum of freight over -Y-100,000 every year commencing on 1st October and ending on 30th September of the following year:—

Over -Y-100,000....	under -Y-150,000.....	3%
" 150,000....	" 200,000.....	3½%
" 200,000....	" 250,000.....	4%
" 250,000....	" 300,000.....	4½%
" 300,000....	" 350,000.....	5%
" 350,000....	" 400,000.....	5½%
" 400,000....	" 450,000.....	6%
" 450,000....	" 500,000.....	6½%
" 500,000....	....	7%

ART. II. Those desirous of qualifying for the allowance of rebates as provided in the preceding article shall present an application in the company's form and shall receive the recognition of same by the company.

ART. III. The allowance of rebates is subject to the following conditions:—

The Company reserves the right to cancel its recognition given to a client, whenever it considers him to have acted in any manner prejudicially to the interests of the Company.

ART. IV. The rebates due will be paid on the elapse of 6 months after the end of every one year's term, namely on 31st March.

ART. V. In case a client qualified for the rebates wish to appoint an agent or agents for the shipment and delivery of goods, his or their names and addresses shall be notified in writing to the company.

This seems fair enough, but the system is a bad one and just now in the United States it has made a number of undesirable citizens out of some prominent captains of industry. The difference between the 3% rebate to the small shipper and 7% to the big shipper amounts to a fair profit to the latter. It opens the way, however, for a profitable freight brokerage business for the Japanese, under which the small shipper may secure a partial reduction by having the agent handle his freight.

The tendency of such rebates is to give the big shipper a decided advantage over the small operator, and the firm controlling the export trade in bean products and the import trade in cotton goods, rice, matches, and saki, has an assured 4% and possible 7% over the small trader. The exports of beans and bean cake through the port of Dalny for the six months ended December 31st, 1907, amounted to approximately 70,000 tons, or approximately, say 140,000 tons for the year. The average rate on this class of freight from stations beyond Liaoyang is about yen 7.00 per ton in car load lots, a total of yen 980,000 from this product alone.

As Japan consumes nearly all the bean products, that trade will necessarily remain under the control of their nationals and insures a 7% rebate in freight. There seems to be no provision against pooling and it seems feasible for the foreign importers to pool their interests and also secure the maximum rebate.

There is no attempt made to conceal these rebates. Every shipper can procure the freight schedule from the company and take measures to secure the maximum reduction. But the cry of discrimination is abroad and the Chinese and foreigners point to the preferential treatment accorded a few large Japanese firms who control the trade, making it impossible for them to compete, without sacrificing their profits.

Here is a situation not unlike many other similar ones in other parts of the world. In America, while there is no actual evidence of secret rebates to the big shipper, yet the public is convinced that such rebates are given. The steamship lines favor the best customers and grant big discounts for cargo lots; the Shipping Ring at London is accused of granting secret rebates to favored firms in Singapore, and the other firms are protesting against such treatment.

Once again the question may be asked, Well, gentlemen, what are you going to do about it? Which foreign nation can approach Japan with clean hands and remonstrate? The United States? Hardly. Americans invented the system and Japan has simply improved on it. Great Britain, the nation most vitally concerned, ought to do it. The Royal Commission on Shipping Rings now investigating the Conference rebates will hardly dare antagonize the most powerful shipowners of Great Britain, even though Singapore call aloud for relief and punishment for the wicked rebaters. The Japanese firms in Singapore have already rights under the most favored nation clause which deserve serious consideration from the Royal Commission.

While waiting for the next move, the South Manchuria Railway Company is working overtime hauling immense quantities of freight, paying attention to business and making profitable returns for the shareholders. If the employees of the road were surly and uncivil in days gone by, it is not so now. I traveled from Dalny to Mukden, Mukden to Changchun, back to Mukden and Dalny, and again to Newchwang, always on the Express, stopping off for a few days at the larger towns. In a life filled with travel, I do not remember of a more enjoyable, comfortable, or delightful experience in a railroad train. The cars are regular Pullman's, bought in Chicago and set up here by Pullman's men, comparing favorably with those on the best roads of America. They represent comfort to the American, but to the European, who desires privacy, they are an abomination. If the railway company would publish in a conspicuous place that there are two private compartments to each sleeping car, for those who wish to pay the extra charge, it would relieve the road of a lot of criticism, and spare the contented traveler from listening to the explosions of wrath from disgruntled continentals who are forced to sleep with the common herd in the beastly American corridor bunk car fit only for emigrants.

The whole trouble in this respect lies in the fact that nearly all the passengers on the South Manchuria Railway are Europeans who have never previously been introduced to a Pullman sleeper. The Pullman sleeper habit is an acquired vice. It takes time to develop any appreciable qualities in the processes provided by Pullman to tuck the traveler away for the night. The South Manchuria Railway Company should issue with each ticket full instruction as to good form, to direct the behavior of passengers in such a car. The American, as a rule, recognizes the rights of others and especially when he is confined to the limitations of a Pullman. He does the regulation acrobatic "stunt," get under the curtain, and after indulging a few contortions in disrobing, lies down and goes to sleep peacefully. Some Europeans disrobe in the corridor, make a lot of unnecessary noise and go behind the curtains muttering all kinds of direful threats against the Japanese in general for buying the abominable cars, and against the Americans in particular for inventing them.

But they seem to be happy in the morning after a comfortable night's sleep in the "bunk," and when the beds are made up are quite satisfied with the car. The dining car, however, is a winner. Whatever maledictions have been called down on Pullman for inventing the sleeper, have been offset by the blessings on the dining car. The meals are excellent, the prices moderate, and the attendance all that could be desired. To the chronic growler, however, there is always some flaw in the service.

My experience is that the treatment and service on the South Manchuria Express cannot be excelled on any train in the world. The conductor, guard, porter, and table boys are obliging and courteous, and go out of their way to serve passengers.

The simple, expeditious, efficient American baggage check system was recently adopted by the company. This is a blessing and Russia and China could readily take a lesson, and do likewise to advantage. There is no hideous weighing of trunks to squeeze a few yen from the passenger for excess baggage, nor does the passenger have to follow up his trunk to see that it gets placed aboard the train, and then have to watch it at every station to see that some one does not appropriate it.

The Japanese are exerting every effort at the present time to overcome the effects of past management and criticism of the road. It is only since November that they have been able to show results and make good. Now they are running a railroad in earnest and looking for the support of the traveling public. They are entitled to the good words and patronage of the public for the fine service.

I left Dalny on the Express, Christmas morning, for Newchwang. There was only one other foreign passenger on the train, the Russian Consul who was on his way home, and two Japanese, one a newspaper editor in Dalny, and the other an army officer. Probably, I was the only one who had paid a fare.

As the train pulled out of Dalny, I went into the dining car. To my great surprise and delight, the car was a mass of decorations. Festoons of silk ribbon draped from window to window and arched across the top, banks of flowers and greens, silk flags all arranged most artistically, gave the whole interior a most decided cheerful holiday aspect. Once before I had traveled in one of the famous limited trains in America on a Christmas Day, but there were no decorations, nor any attempt made to make the homesick traveler feel brighter, not even the dinner varied much from the usual menu, but the attendants were there with palms outstretched waiting for the Christmas present just the same.

The contrast was marked. The Christmas dinner served on the train in "heathen" China was a real Christmas feast and the waiters tried to make it pleasant and cheerful. There were no hints for tips from any member of the crew and when I gave the boy some yen for a Christmas remembrance, it was a long time before he realized that it was all for him.

That train probably ran through to Changchun after I left at Tashihchao with only one Christian passenger. After that can anyone accuse the South Manchuria Railway Company of discourtesy or lack of attention to their passengers? I consider it one of the most delicate compliments that could be paid to the foreign traveler.

Fancy a railway train being decorated in Europe or America for a Japanese or Chinese religious holiday. With all our boasted enlightenment, we have not reached that stage.

OBSTRUCTIVE ATTITUDE OF THE PHILIPPINE ASSEMBLY

After eight years of persistent work in the interests of the Philippines and their people, during which time he has extended to them the greatest degree of participation in local government, President Taft finds the body of legislators, for which his liberality is responsible, arrayed against him in his effort to find a market for Philippine tobacco and sugar in the United States. And, indeed, up to the time that the Payne Bill was introduced in the Congress, there was every reason to believe that any legislation tending to secure a market for Philippine products would surely receive unanimous support from the Filipino deputies. But no sooner did it become apparent that there was prospect for action providing for a limited free entry of sugar and tobacco into the United States than a resolution directed against the legislation was unanimously adopted by the Assembly.

The Payne Bill provides for the free entry of all products of the Philippine Islands with the exception of sugar and tobacco, the latter being restricted to a limited amount yearly. It also provides for the free entry of American manufactures and other products from the United States into the islands. In making an excuse for their action the deputies declared that, by opening the country to American enterprise, it would endanger the prospect for independence and that in addition to this threatened danger, the free entry of American goods into the islands would result in a deficit in revenue. But even a joint resolution, substituted by the Commission, providing in a proposed recommendation that provision be made by Congress to cover the deficit, was turned down by the anti-Taft assembly. The members stuck to the excuse that, with exploitation by American capital, the islands would never see the dawn of independence.

The bill in amended form has passed the House of Representatives in Washington and there is prospect that it will become effective even if amended further. Rice has been removed from the list of products to be admitted free into the United States and it may be that other interests may make a hard fight against the bill and secure some changes, but that it is on its way to final passage, is the general belief in the more optimistic Philippine circles.

There is also reason to believe that President Taft is far from pleased with the attitude of the Assembly, and, in view of the many protests from all parts of the islands against that body's attitude, there may be some action taken by Congress restricting its powers.

The only hope for the islands rests in securing a market for their sugar and tobacco, not that the United States would necessarily be a large purchaser but that China would have to meet New York prices less difference in freights, etc. Already capital is looking for investment in the sugar industry in the islands, provisionally upon the passage of the Payne Bill, and it is expected that other industries, backed by American and foreign capital, will surely follow. To allow any body to interfere with any such prospect would prove a most serious mistake of the administration and we do not believe that it would stand for any such attitude of obstruction.

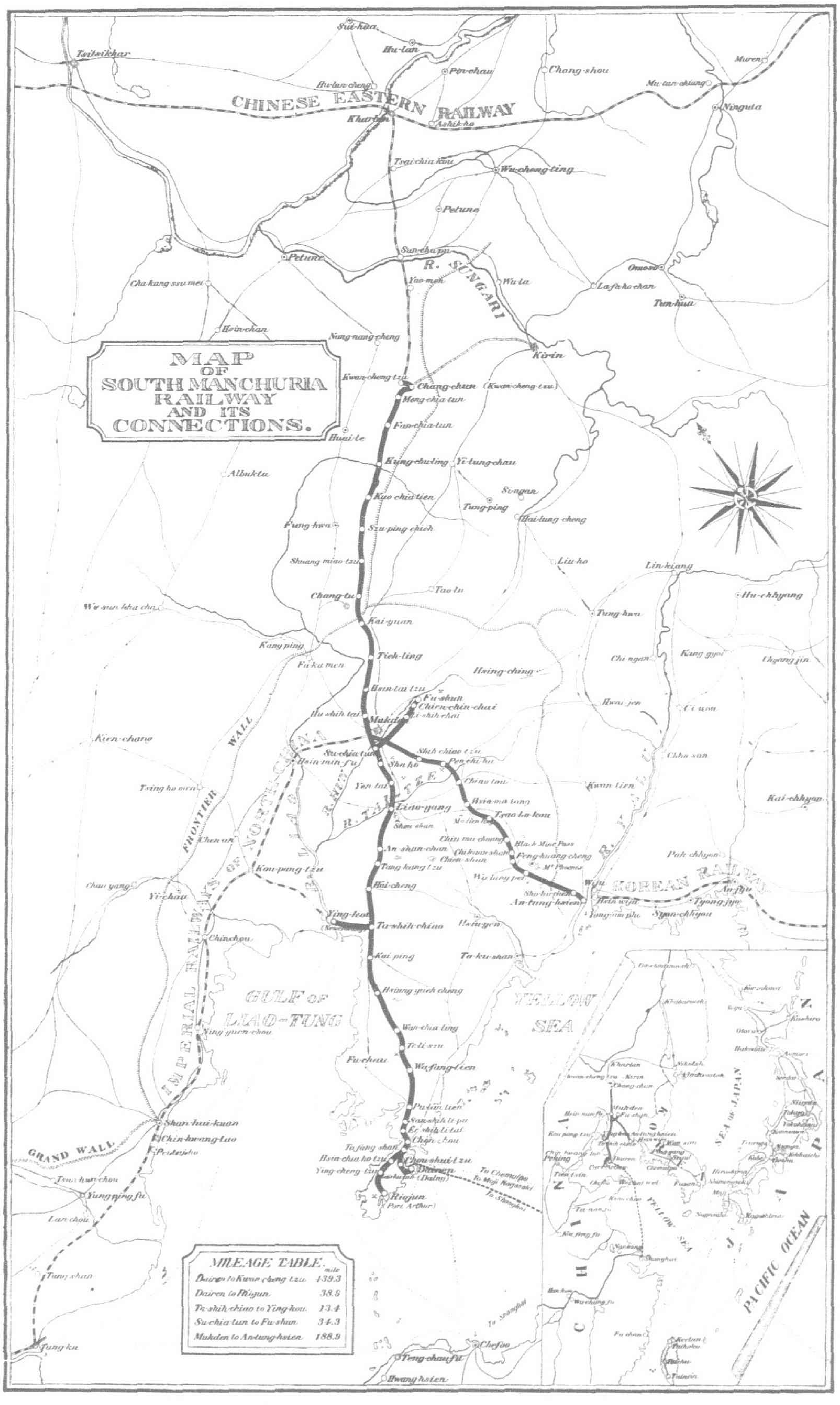
Very fortunately for the Philippines and those who have been working in their interests, Congress has authority to legislate as it sees fit without consulting the wishes of the irresponsible politicians of the archipelago.

FAILURE OF MANILA STRIKE

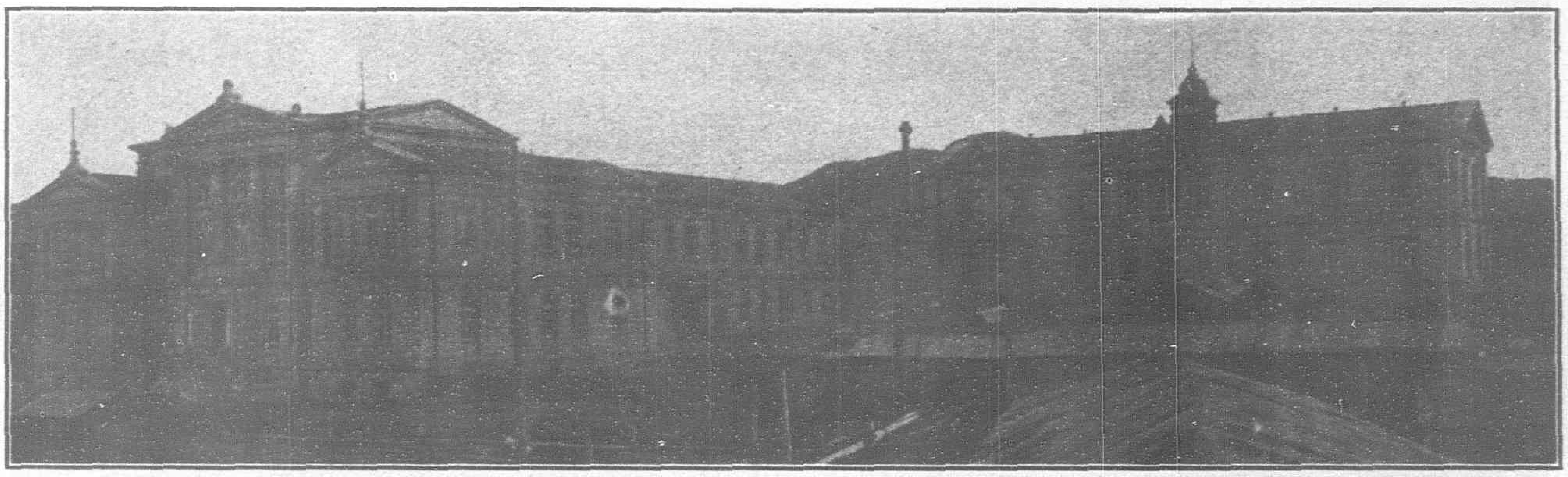
The successful struggle of the Manila Electric Railway and Light Company against its striking employees has had the desired result of putting a quietus on the agitation that but recently threatened to seriously disturb industrial conditions and result in great hardship on the working classes. The firm position taken by the company from the initiation of the strike, its persistency in providing ample transportation for the public, under the most trying conditions, and its refusal to recognize the alleged union or the agitators controlling it, were responsible for its complete victory. The incarceration of an agitator, one Gomez, for addressing threatening letters to business firms and the fact that the prison authorities obliged him to earn his daily bread by the sweat of his brow for the first time in his life, has also had the moral effect of silencing a large *junta* of these gentlemen. The result is that all the motormen are out of a job and must wait for vacancies in the service. General Manager Graves has offered to show a preference for men of large families and those who were intimidated by the strikers and forced to quit work against their will, but all must begin at the foot of the ladder again.

Had the company shown any weakness or compromised in any measure, it is certain that by this time every industry would have been affected. That the company spared no expense or loss to make the victory complete, and thus saved the community of Manila millions of dollars, should be gratefully acknowledged by all the other industrial institutions, who have been thus protected.

As for the agitators who were misleading the workers in all branches of activity, the fate of Gomez has taught them a lesson, and the misguided, who are now suffering, have for the time lost faith in those to whom they entrusted their opportunity to earn a competency, and who have so signally failed them.


MAP OF SOUTH MANCHURIA RAILWAY AND ITS CONNECTIONS.
CHINESE EASTERN RAILWAY
KOREAN RAILWAY
IMPERIAL RAILWAYS OF NORTH CHINA
FRONTIER WALL
GRAND WALL
R. SUNGARI
R. LIAO-HO
R. TAI-TSE
R. YALU
GULF OF LIAO-TUNG
YELLOW SEA
SEA OF JAPAN
PACIFIC OCEAN
Tsitsikhar
Sui-hua
Hu-lan
Pin-chau
Chang-shou
Harbin
Ashi-ho
Muren
Ninguta
Tsai-chia-kou
Wu-cheng-ting
Petune
Sun-cha-pu
Yao-men
Wu-la
Omoso
Tun-hua
Kirin
Chang-chun (Kwan-cheng-tzu)
Kwan-cheng-tzu
Meng-chia-tun
Fan-chia-tun
Huai-te
Kung-chu-ling
Yi-tung-chau
Kuo-chia-tien
Szu-ping-chieh
Tung-ping
Hai-lung-cheng
Fung-hwa
Chang-tu
Kai-yuan
Tieh-ling
Hsin-tai-tzu
Fu-shun
Mukden
Su-chia-tun
Hsin-min-fu
Sha-ho
Yen-tai
Liao-yang
An-shan-chan
Hai-cheng
Ying-kou
Ta-shih-chiao
Kai-ping
Hsiung-yueh-cheng
Wan-chia-ling
Wa-fang-tien
Pu-lan-tien
Chou-shui-tzu
Dairen (Dalny)
Riojun (Port Arthur)
Feng-huang-cheng
An-tung-hsien
Wiju
Shan-hai-kuan
Chin-hwang-tao
Chinchou
Yi-chau
Kou-pang-tzu
Tung-ku
Chefoo
Teng-chau-fu
Hwang-hsien
MILEAGE TABLE.
mile
Dairen to Kwan-cheng-tzu. 439.3
Dairen to Riojun. 38.8
Ta-shih-chiao to Ying-kou. 13.4
Su-chia-tun to Fu-shun. 34.3
Mukden to An-tung-hsien 188.9

HISTORY OF THE SOUTH MANCHURIA RAILWAY



SOUTH MANCHURIA RAILWAY'S GENERAL OFFICES AND ADMINISTRATION BUILDING AT DALNY, RECENTLY COMPLETED

The South Manchuria Railway between Kuangchengtzu, Dalny, and Port Arthur was transferred to the Japanese Government by Russia at the close of the Russo-Japanese War. The organization of a company to operate this line was authorized by an Imperial Ordinance issued by the Emperor of Japan, and in pursuance of the provisions thereof the Organization Committee held its first meeting on the 10th of August, 1906.

It was decided that the head offices of the Company should be located at Tokyo, with a branch office at Dalny, that the Company should be capitalized at Yen 200,000,000, the Government to receive Yen 100,000,000 in shares for

(1) Railways already constructed (excluding the rolling stock now in use, rails of the Mukden Antung-hsien light railway and accessories).

NEW JAPANESE BARRACKS FOR THE RAILWAY GUARDS AT MUKDEN

(2) All property accessory to the above railways (excluding the property in the Leased Territory which shoud be specially designated by the Government.)

(3) Coal mines at Fushun and Yentai.

It was also provided that interest, guaranteed by the Government, is to be paid at the rate of 6% per annum on the paid up capital of the Company for fifteen years after the registration of its organization and that the subsidy shall in no case exceed 6% of the paid up capital, that the subsidy with an interest of 6% shall be made a liability of the Company to the Government, repayable with the excess of the Company's dividends above 10% per annum on all shares.

There were, when subscriptions were called for in the autumn of 1906, 11,467 applicants for 106,643 418 shares. Of these all applications for less than ten shares were rejected, leaving 11,356 applicants for 106,643,016 shares or 106,544,016 shares in excess of the 99,000 to be allotted, the apportionment being as follows:—

	Shares.
Apportioned by calculation	94,333
Apportioned by lot	4,667
Directors' shares, reserved	1,000
Total	100,000

The Government's portion, Yen 100,000,000, was regarded as paid up, and the actual subscribed capital of the Company is now Yen 120,000 000.

Although it was provided that the South Manchuria Railway should be a Chinese-Japanese organization, the Chinese failed to avail themselves of the opportunity to purchase shares and protested against the organization of the Railway on the grounds that the Articles of Association were inconsistent with the terms of the Peking Treaty signed in December 1905, and claimed that Japan had included in the list of "property" of the South Manchuria Railway Company certain branch lines and collieries, notably the Yentai and Fushun Mines, which they claimed, although a certain amount of Russian capital was used in their operation, were Chinese private property.

Administration.—In view of the varied functions delegated to the Railway Administration as well as the intimate association of this organization with the Japanese Government, the political significance of its policy, and the extent to which its control of the communications of southern Manchuria may affect the commercial development of this region, can scarcely be overestimated.

The Railway Company is empowered to:—

(1) Engage in the following business for the benefit of the Railway:

(a) Mining, especially the working of the Yentai and Fushun collieries.

(b) Marine transport.

(c) Electric works.

(d) Sale on consignment of the principal goods carried by rail.

(e) Warehousing business.

(f) Construction and administration of land and houses on the land belonging to the railway.

(2) Make the necessary provisions for education, health, and engineering work within the limit of the land belonging to the railway.

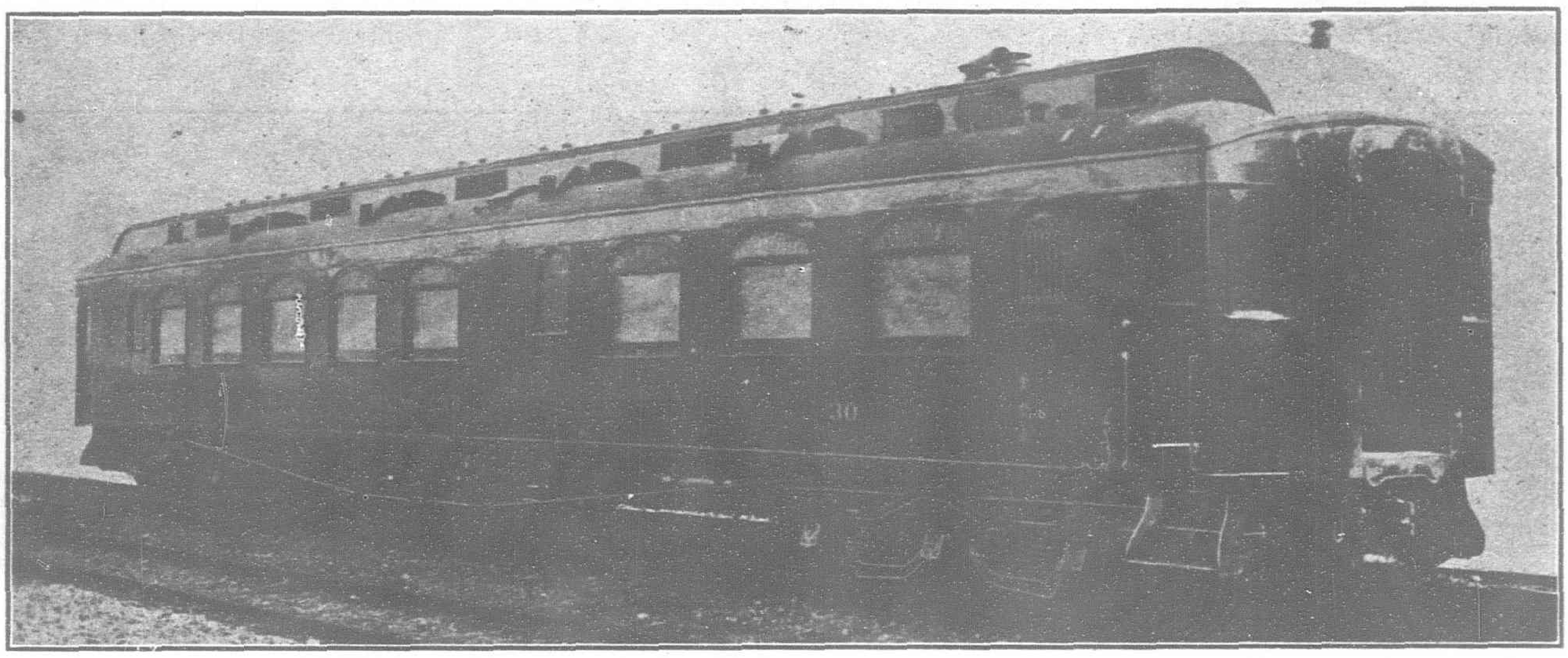
(3) Collect fees from the inhabitants within the limit of land belonging to the railway to defray expense of above.

The establishment of a Japanese settlement at Newchwang in an area not as at Liaoyang, Mukden, and Tiehling, acquired from the Russians, but purchased from the natives, with an administration formerly controlled by the Military Governor of the Leased Territory, was perhaps the first instance of the application of the powers conferred in (2) and (3). If the tracts varying from one thousand to two thousand three hundred acres at the above mentioned cities had been put to a similar use, the Railway Company would have assumed the dignity of a Colonial Administrator, and this circumstance drew on the Japanese much adverse comment.

The Railway is protected by a force of approximately fifteen thousand men stationed at different points along the main and branch lines, and quartered not only in barracks near the stations, but within the neighboring cities as well.

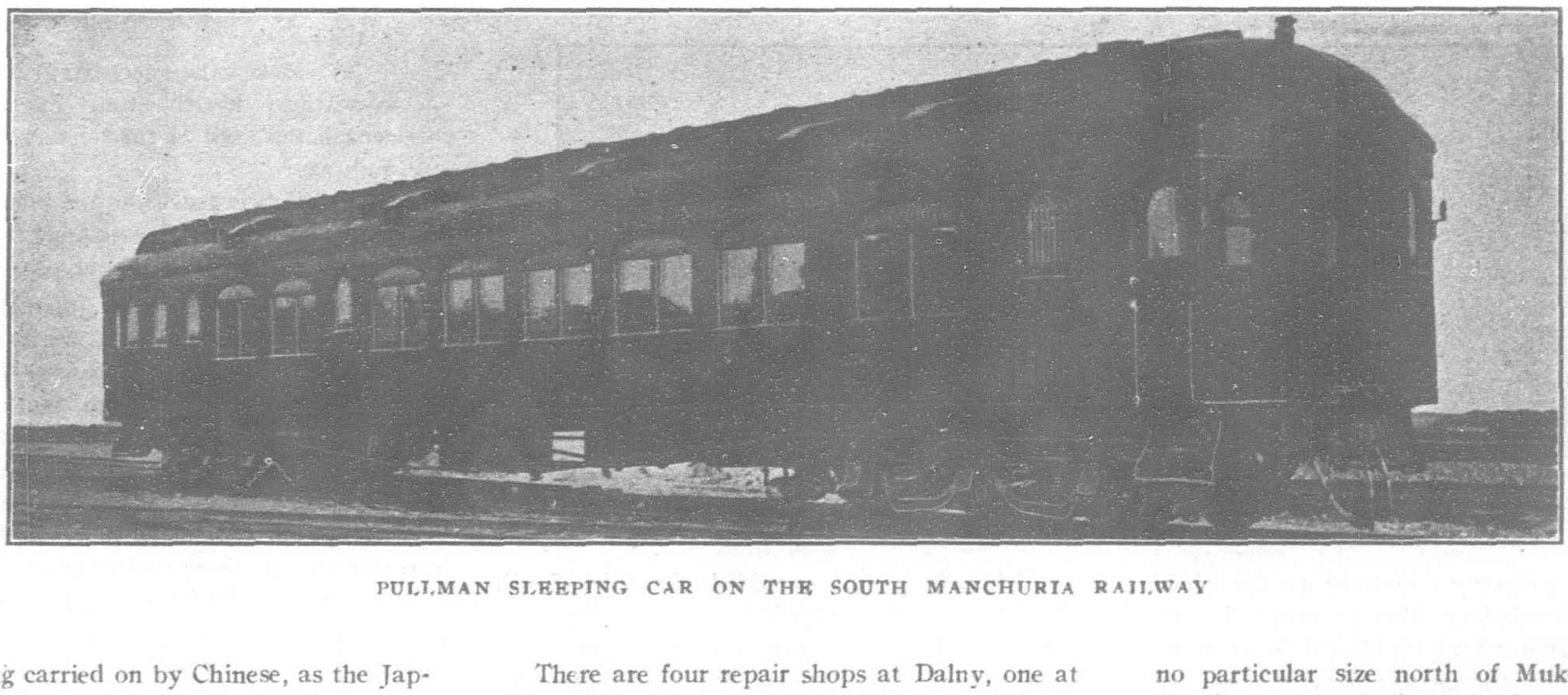
The policing of the Railway is under the supervision of the Governor General of the Leased

Territory who has charge also of an elaborate postal and telegraph system. The Manchurian Consular Courts have civil jurisdiction in the Railway Settlements.



PULLMAN DINING CAR ON THE SOUTH MANCHURIA RAILWAY

The President of the South Manchuria Railway Company receives Yen 50,000 per annum, the Vice-President 30,000, the six Directors 12,000 each (six thousand salary and six thousand allowances), the Chief Secretary 10,000, and five overseers 1,000 each. At first the total number of officials and Japanese employees was 7,860, giving an average of approximately eleven per mile, and the monthly pay roll amounted to Yen 281,552.35. This force has since been greatly reduced, and the road is now being run on strict business and economical lines. At present nearly all the construction work is being carried on by Chinese, as the Japanese laborer can not compete with him.



PULLMAN SLEEPING CAR ON THE SOUTH MANCHURIA RAILWAY

Equipment.—The military authorities, formerly in control of the Railway, declined to furnish information regarding the rolling stock on the line. Notwithstanding the demand for shipping facilities and the stagnation of freight at Tiehling and other northern points, numbers of cars were returned to Japan, and Japanese as well as foreigners and Chinese complained that the Administration, in its haste to reduce the rental paid to the Railway Companies in Japan for the use of their carriages, sacrificed large profits and seriously interfered with trade. Until steps were taken to widen the gauge and new rolling stock imported, there was no amelioration of these conditions.

Seventy box and open freight cars and second and third class passenger cars were all that were in use at one time, while the company was at work standardizing the line and awaiting new equipment from America. It was during this period that the criticisms of discrimination were most severe and many complaints found their way into print without any serious effort being made to analyze the underlying causes. While there was enough ground for some criticism, yet it is unfair to attack an enterprise for incompetency while it is striving to get on its feet.

There are four repair shops at Dalny, one at Liaoyang, three at Kuangchengtzu, and one at Port Arthur.

There are 781 railway buildings, including watch sheds, etc. Practically the only substantial buildings were constructed by the Russians and for a long time were in bad condition, and the repairs attempted by the Japanese were of the most temporary character. Tile roofs damaged by shell fire were roughly patched or where the original covering was wholly destroyed galvanized iron was substituted. Structures that were gutted by fire were lined with a wooden shell eight or nine feet high Windows were boarded or the broken panes covered with paper and months of rough usage and careless treatment did not improve the condition of buildings which the Russians attempted to destroy as they retreated toward the north.

Here again the critic found fault with the administration, but the stations have since been made as comfortable as possible, and new edifices are going up at the most important places. The railway has confined its energies first to improving the track and rolling stock, so that they could handle the traffic, which would make new stations possible.

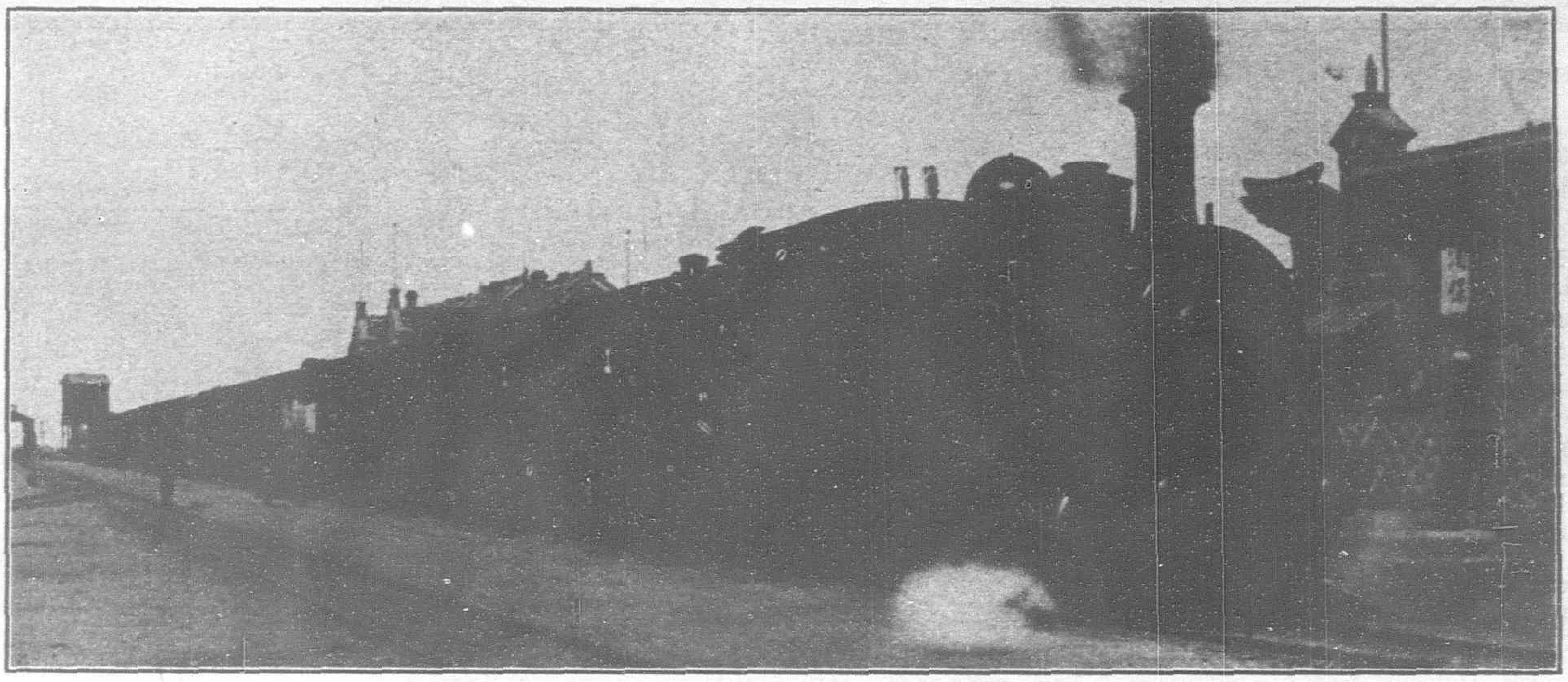
There are at the present time 254 permanent and 24 temporary bridges. The former are of no particular size north of Mukden. As the Russians dynamited most of the larger structures between Mukden and Ssuoingkai they must necessarily be rebuilt.

The old roadbed was well laid and the embankments in good condition. Sixty-five pound rails were used and the ties are still serviceable.

It was stated that three years would be required to widen the gauge, from 3' 6" to 4' 8½".

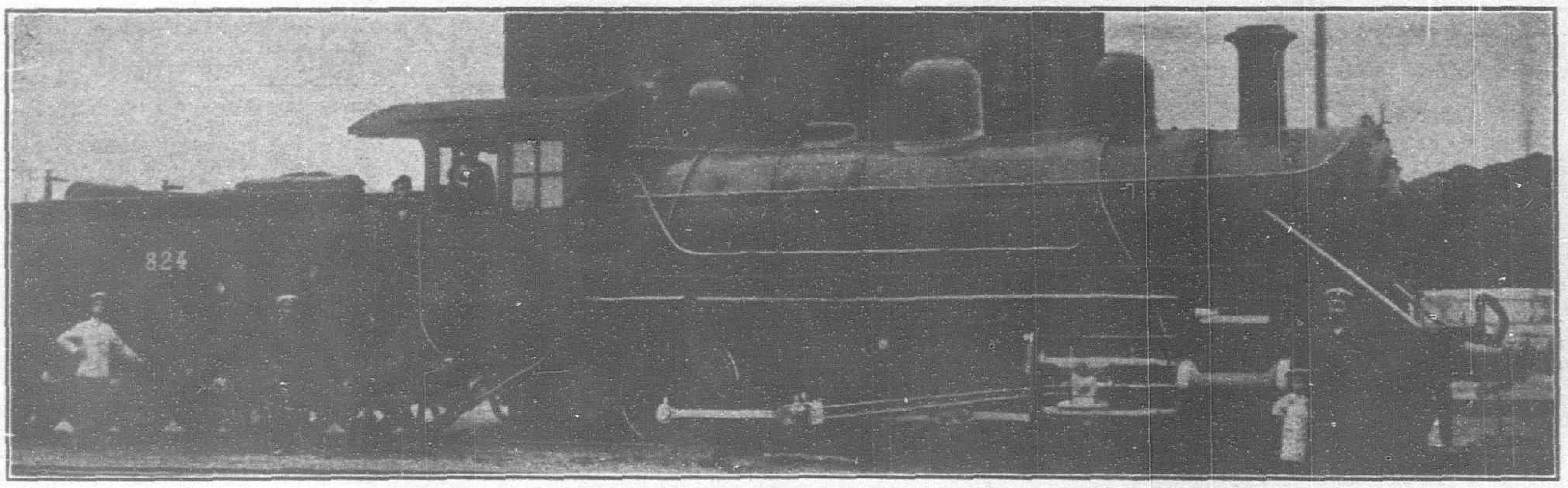
This has been completed in half the time, and the company is at present double tracking the work from Dalny to Suchiatun to handle the coal output of Fushun.

Operation.—The area traversed by the South Manchuria Railway is one of the richest agriculturally in the world, populated by a hard working and thrifty people who as pioneers and settlers are more open-minded than their fellow countrymen in China proper. Each year brings thousands of immigrants from the provinces of Chihli and Shantung, and this human tide is gradually flooding the heretofore uncultivated plain of Heilungchiang and Mongolia, penetrating the forest-clad hills along the Yalu and peopling the valleys in the mountains that rise to the east of the great Liao Plain.



SOUTH MANCHURIA RAILWAY.—FREIGHT TRAIN AT NEWCHWANG

There are a number of prosperous cities, each having served as a market and distributing center for the country in its immediate vicinity, located at intervals of between thirty-five and forty miles, along the railroad between Newchwang and Changchun.



TYPE OF NARROW GAUGE AMERICAN LOCOMOTIVE IN USE ON S. M. RAILWAY BEFORE CONVERSION TO STANDARD GAUGE, BUILT BY THE AMERICAN LOCOMOTIVE CO.

Tungchiangtzu and Fakumen, the former on the banks and the latter not far from the Liao River, and Tiehling which is on the river and railway as well, have been the great centers of the bean trade. Thousands of carts each winter brought their loads to these points for storage and shipment south when the river opened in the spring. Mukden has been the principal fur market and Changchun (Kuangchengtzu) the great distributing center for northern Manchuria and Mongolia.

Ordinary goods were charged 5 sen per ton per mile between Tashihchiao and the north, and between that place and Newchwang, while the same articles may be carried between Tashihchiao and Dalny for two sen per ton per mile. There are no positive proofs that preferential rates have ever been granted Japanese merchants, but there are indications that they have received privileges not accorded Chinese and foreigners, and the discrimination in favor of Dalny, at which place under the old military administration it was practically impossible for a foreigner to engage in trade, has in itself been the cause of much complaint on the part of the foreign merchants of Newchwang.

It has been stated that no single line of Railway can carry the annual Manchurian bean crop to the seaboard, nor can the South Manchuria Railway Company ever be able to furnish adequate transportation facilities. There was in fact, at one time, so much dissatisfaction with the management of the line and the delays of freight in transit that a number of shipments were made from and to Newchwang by cart for not only is the cost of transportation slightly less but delivery may be expected within a certain definite time.

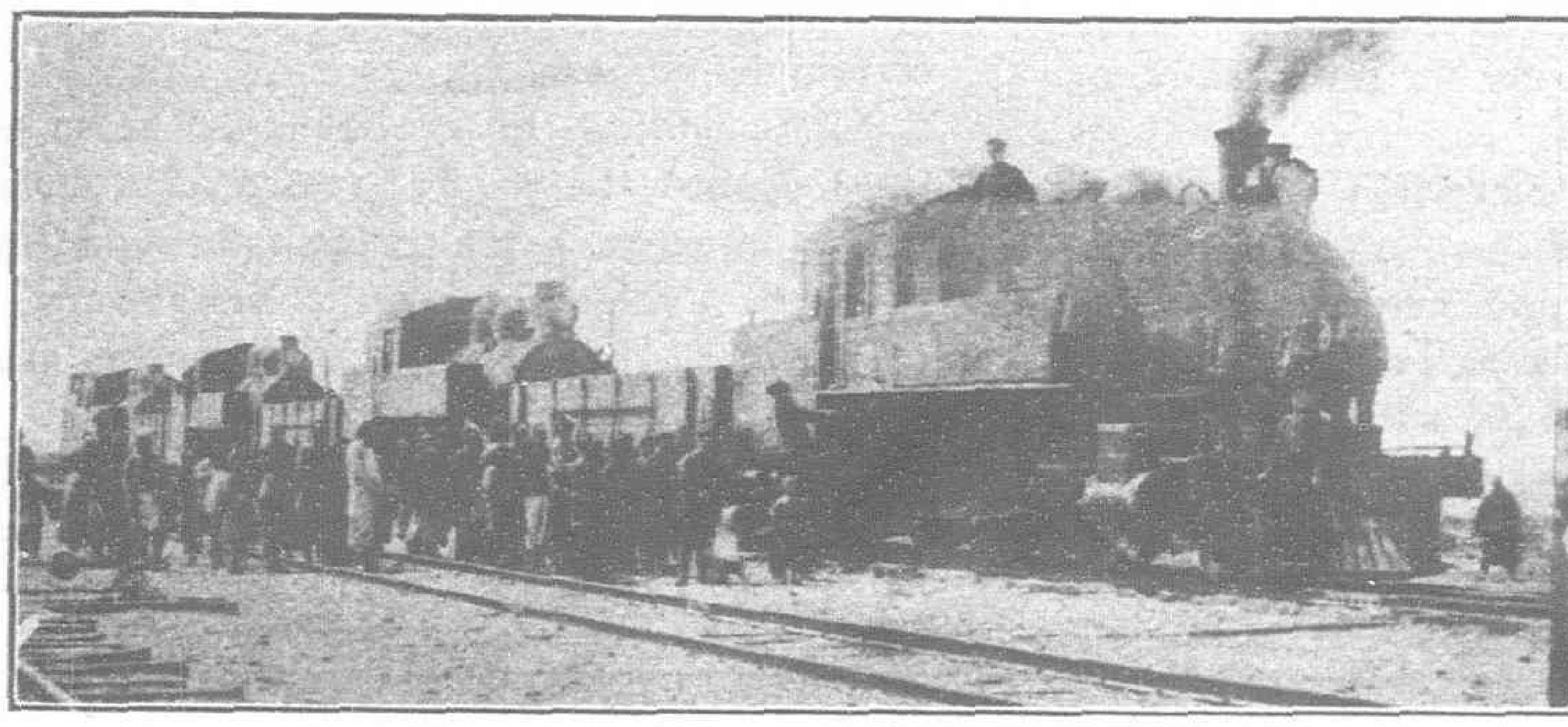
This condition can not be urged as an argument against the road at present, for, with the new equipment, every effort is being made to cater to foreign shippers at Newchwang, and at the same time handle the numerous freight from the north.

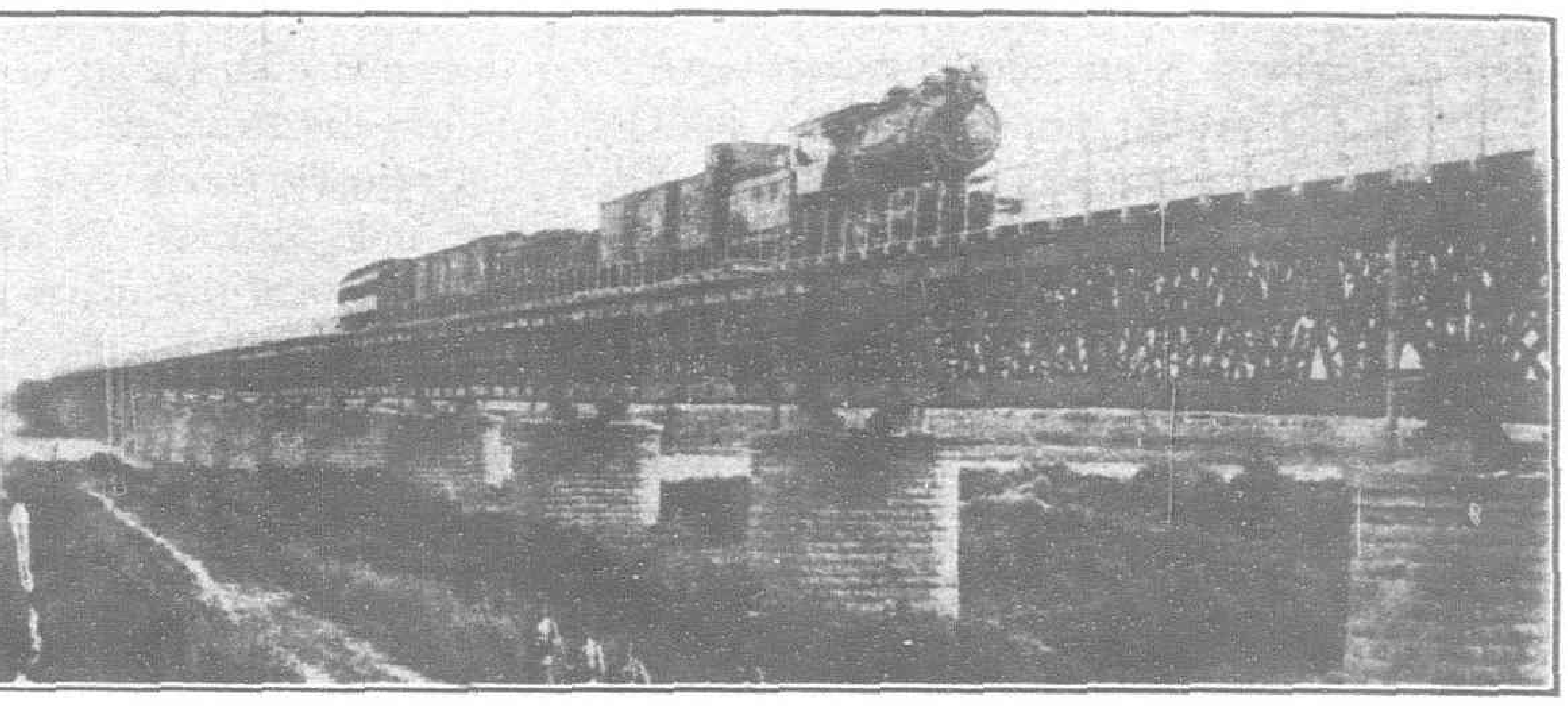
The Antung-Mukden line does not pay running expenses at the present time, but it is hoped that it will ultimately become profitable owing to the fact that it will form part of the through trunk line to Fusan and will be of great service in developing the mineral resources of south-eastern Shengking.

There are now 187 miles of track but the line will be considerably shortened when the gauge is widened and the final roadbed constructed.

The Yentai and Fushun branches, respectively 14 and 25 miles in length, connect the coal mines at these places with the main road.

A railway probably will shortly be constructed between Changchun (Kuangchengtzu) and Kirin, and it is stated that a company has already been organized with a capital of 4,000,000 Taels, and has engaged Japanese engineers to undertake the preliminary surveys.


FREIGHT CARS ON THE SOUTH MANCHURIA RAILWAY


BRIDGE OVER THE HUN HO

Principal Officials of the Railway Administration.—President, Z. Nakamura, Dairen; Vice-President, S. Kunisawa, Dairen; Directors, C. Seino, (Tokyo Branch), Tokyo; K. Kubota, N. Inuzuka, S. Tanaka, M. Kubota, S. Okamatsu, K. Nonomura, Dairen; Secretary, M. Numata, Dairen; Chief Railway Engineer, S. Kunisawa, Dairen; Chief Mining Engineer, Matsuda Fushun Collieries; Chief Accountant, S. Yasuda, Dairen, Construction Engineer, S. Hori, Dairen; Superintendent of Hospitals, Dr. K. Kasai, Dairen; Captain Superintendent, Capt. K. Matsuo, Dairen; Mechanical Engineer, M. Yoshino, Dairen; Harbor Engineer, T. Uchida, Dairen; Electrical Engineer, Y. Kasuya, Dairen; Superintendent of Hotels, K. Uyeda, Dairen; Store Superintendent, S. Yamamoto, Dairen.

COMPARATIVE SEMI-ANNUAL STATEMENT OF PROFIT & LOSS

CR	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Railway Receipts.....	Y 4,093,424.860	Y 5,675,462.253
2. Mine Receipts.....	647,065.693	837,153.557
3. Harbour Receipts.....	146,848.338	425,644.280
4. Hotel Receipts.....	16,451.800	42,940,910
5. Electric Work	5,674.000	59,247.400
6. Land........	33,537.545	87,256.906
7. Miscellaneous	59,456.813	412,951.411
Total....	Y 5,002,459.049	Y 7,540,656.717

LIABILITIES

DR	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Railway Expenditures.	Y 2,757,446.446	Y 3,344,168.420
2. Mine Expenditures....	348,251.072	582,963.309
3. Harbour Expenditures.	63,624.343	496,526.229
4. Hotel Expenditures.	32,025.735	58,194.457
5. Electric Work Expenditures....	39,307.403	61,930.175
6. Land Expenditures.	85,730.665	165,275.457
7. General Expenditures.	688,899.026	708,731.794
8. Debenture Redemption Fund.	58,578.000	8,578.5000
9. Interest on Debentures	....	976,300.000
Total.....	4,073,862.690	6,452,667.841
Net profit.	928,596.359	1,087,988.876

COMPARATIVE SEMI-ANNUAL STATEMENT OF ASSETS & LIABILITIES

Assets

	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Uncalled Capital......	Y 18,000,000.000	Y 18,000,000.000
2. Properties taken over from the Government of Japan.......	100,000,000.000	100,000,000.000
3. Capital Expenditures.	4,513,325.415	14,048,757.648
4. Stores.......	2,021,887.525	13.796,971.252
5. Coal in stock.	144,765.398	138,744.713
6. Ground & Buildings of Tokyo Branch office.......	183,731.250	633,731.250
7. Difference between Face Value & Issue Price of debentures......	2,928,900.000	2,928,900.000
8. Suspension %	646,200.755	1,434,322.690
9. Sundry Debtors........	175,076.349	809,046.677
10. Workshop %.	125,046.955	124,876.111
11. Deposits.....	5,007,712.688	13,416,661.310
12. Cash on hand	122,062.348	144,099.096
13. Unpaid Debentures...	28,117,440.000	....
14. Postal & Revenue Stamp %..	....	3,420.000
Total.....	Y161,986,148.683	Y165,449,530.967

Liabilities

	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKIN HALF-YEAR (October 1907 March 1908.)
1. Capital Authorized...	Y200,000,000.000	Y200,000,000.000
Capital Subscribed....	120,000,000.000	120,000,000.000
2. Legal Reserve Fund...	22,705.890	69,135.710
3. Unclaimed Dividends.	6,675.120	5,372.130
4. Debentures..	39,052,000.000	39,052,000.000
5. Debenture Redemption Fund.	58,578.000	117,156.000
6. Guarantee Deposits ..	1,935.600	260.000
7. Suspension %	635,257.232	2,931,281.977
8. Sundry Creditors.....	896,659 803	873,379.544
9. Special Reserve Fund	....	200,000.000
10. Land Rent %	....	5,696.082
11. Savings Deposits.....	....	181,353.410
12. Brought forward from last half-year.......	383,740.679	925,907.218
13. Balance Profit & Loss %........	928,596.359	1,087,988.876
Total.....	Y161,986,148.683	Y165,449,530.947

SEMI-ANNUAL TRAFFIC RECEIPTS & EXPENDITURES

(SEPT. 1907-MCH. 1908)

RECEIPTS

	MAIN LINE ANTUNG	MUKDEN LINE.
1. Passenger Traffic........	Y1,707,046	Y91,550
2. Goods Traffic...........	3,795,977	77,145
3. Miscellaneous...........	3,683	60
Total...............	Y5,506,796	Y168,755

EXPENDITURES

1. Maintenance............	Y 815,502	Y 149,204
2. Operation..............	1,465,514	172,170
3. Traffic................	673,576	68,202
Total...............	Y2,954,592	Y 389,576

COMPARATIVE STATISTICS OF OUTPUT OF FUSHUN COAL

MONTHS	QUANTITIES MINED	QUANTITIES SOLD	QUANTITIES CONSUMED BY CO.
Oct. '07............	23,525	1,637	12,970
Nov. '07............	21,883	7,286	8,833
Dec. '07............	24,934	3,033	9,489
Jan. '08............	23 374	6,919	12,110
Feb. '08............	17,635	7,082	18,247
Mch. '08............	27,082	13,674	24,093
Apr. '08............	27,802	5,748	21,033
May '08............	31,425	7,623	19,512
Jun. '08............	33,504	10,079	30,402
Jul. '08............	37,048	10,107	36,807
Aug. '08............	34,476	8,847	20,884
Sept. '08............	40,274	14,314	23,624
Total.........	342,962	96,349	238,004

PARTICULARS OF THE RAILWAY AREA

AREA OF THE RAILWAY ZONE

1. Within the Leased Territory.	6,637,671	"tsubo."*
2. Along the Main Line outside the Leased Territory.......	40,107,477	"
3. Along the Yingkou Branch Line..................	1,790,102	"
4. Along the Fushun Branch Line..................	528,797	"
5. Along the Antung-Mukden Light Railway Line......	1,522,350	"
6. The balance scattered over a number of places along the Lines................	3,585,315	"
Total.................	54,171,712	"

LAND AND BUILDING AREA RENTED

1. The total area of land rented out at the end of July, 1908..................	12,814,083	"tsubo."
2. The total building area rented out at the end of July, 1908..................	12,171	"

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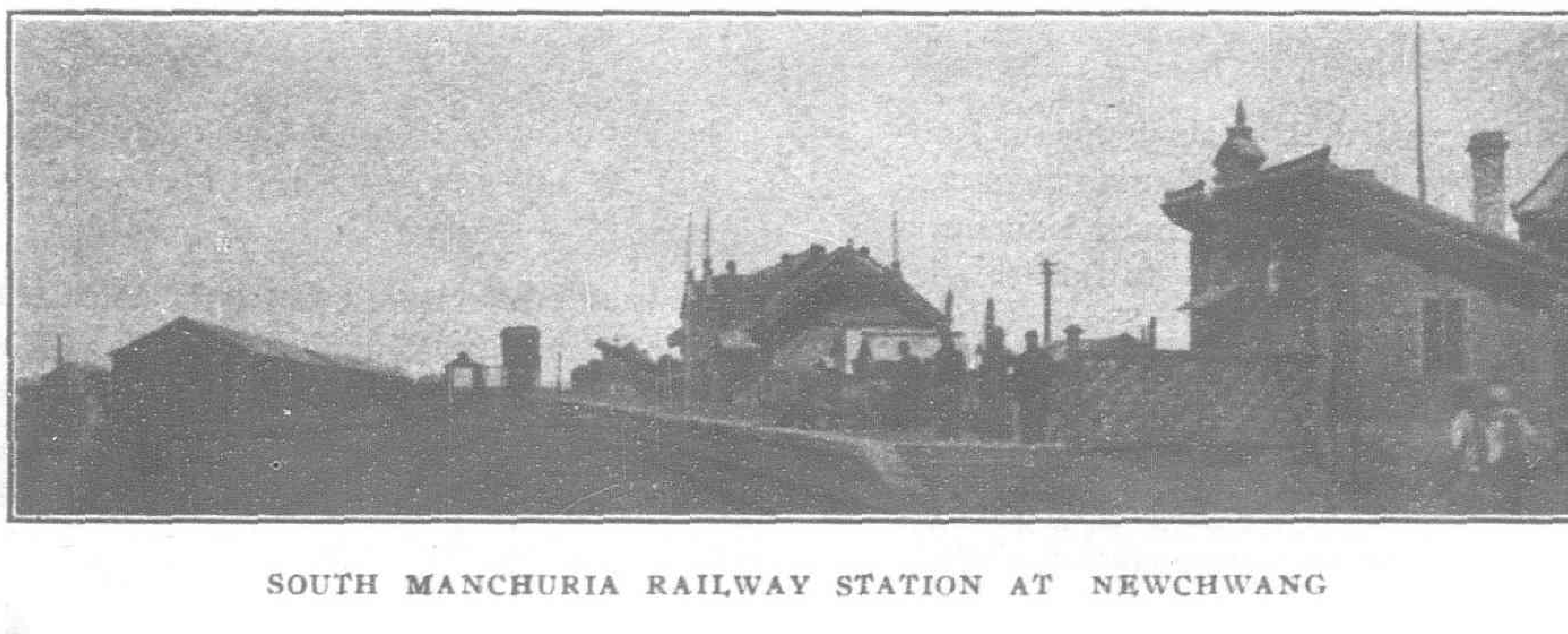
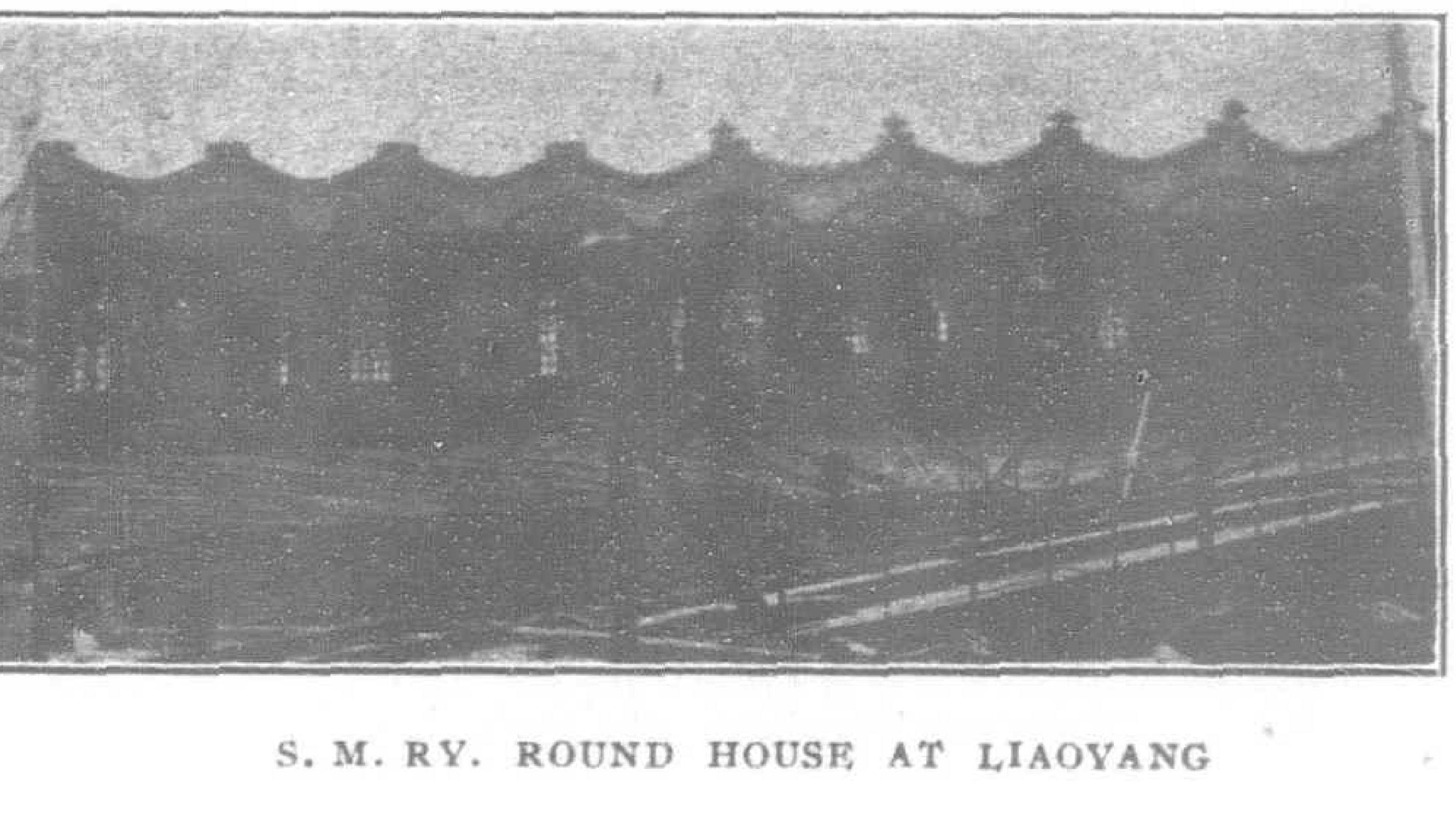
*A "Tsubo" represents 36 square feet.


SOUTH MANCHURIA RAILWAY STATION AT NEWCHWANG


S. M. RY. ROUND HOUSE AT LIAOYANG

SOUTH MANCHURIA RAILWAY EXPRESS TRAINS,

composed exclusively of the Pullman Dining, Sleeping, and 1st Class Cars, are operated Semi-Weekly as follows:

FOR EUROPE

DAIREN

Sunday—Arr. about 6 a. m. by S.S. "Kobe-Maru" from Shanghai.

Monday and Friday.—Dep. 8 a. m.

CHANGCHUN

*Tuesday and †Saturday.—Arr. 5 a. m. South Manchuria Ry. Dep. 5.40 a. m. Chinese Eastern Ry. for Harbin).

FROM EUROPE

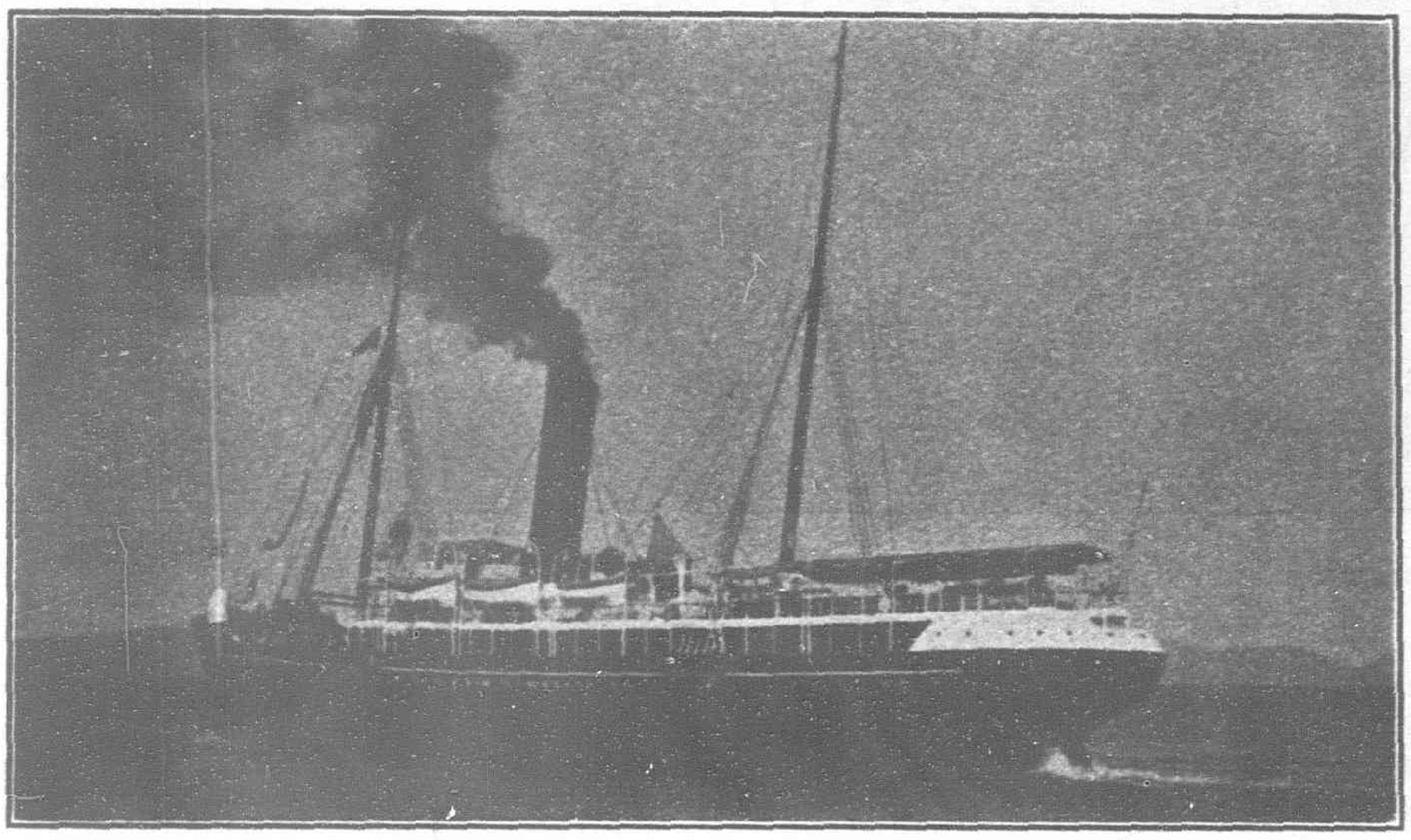
CHANGCHUN

§Tuesday & ‡Saturday.—Arr.7. 30 p. m. (C. E. R. from Harbin.) Dep. 8.40 p. m. (S. M. R.)

DAIREN

Wednesday & Sunday.—Arr. 6.15 p. m.

Monday.—Dep. Noon. (By S. S. "Kobe-Maru" for Shanghai).



SOUTH MANCHURIA RAILWAY S. S. KOBE-MARU ON SHANGHAI DALNY RUN CONNECTING WITH S. M. EXPRESS

Dairen-Shanghai Steamer Service.—Passage tickets are on sale and berths may be reserved at the principal Stations of South Manchuria Railway and also at the agencies of the International Sleeping Car & Express Trains Company and also Messrs. Thos. Cook & Son in Europe and the Far East, for the fast passenger steamer *Kobe-Maru* (2,877 tons) carrying a duly qualified surgeon on board, on the Dairen-Shanghai steamer service.

Leaving Dairen—Mondays at noon, and

Arriving Shanghai—Wednesdays.

Leaving Shanghai—Fridays,

Due at Dairen—Sundays, in early morning generally.

FARES:

	1st Class	2nd Class	3rd Class
Single Trip.........	-Y-40	-Y-25	-Y-10
Return Trip........	-Y-64	-Y-40	-Y-20

How to take the quickest route from Europe to the Far East.—Suppose you take the Wagons-Lits train leaving Moscow every Wednesday and due at Harbin at 7.35 a.m. on the following Saturday.

8 hours and 25 minutes later, you will start for Chang-chun (Kwanchengtzu) Junction of the Russian and the Japanese Lines, reaching there at 7.05 on the same evening, in time to be transferred to one of our Semi-Weekly Express Trains composed exclusively of the Pullman Sleeping, Dining, and 1st-class Cars, leaving Changchun on Tuesdays and Saturdays.

The Saturday Express will depart from Changchun at 8.40 p.m., just like the other, and is due at 5.40 a.m. next morning (Sunday) at Mukden Junction for Tientsin and Peking via Shanhaikwan on the Imperial Railways of North China.

Leaving Mukden 25 minutes later, you will reach Dairen at 6.15 on the same evening, to put up, if you are so minded, at the Railway Hotel "Yamato" which is gaining in favor with the travelers for its irreproachable service and attention.

The passenger steamer *Kobe-Maru,* sailing from Dairen at noon every Monday, will take you to Shanghai on Wednesday.

TIME AND MONEY REQUIRED EN ROUTE (FROM EUROPE.)

MOSCOW-SHANGHAI.

Moscow-Changchun—11 days

1st class—Rbls. 282 2-5, including Sleeping Berth fee.

2nd class—Rbls. 184 3-10.

The Harbin-Kwangchengtzu Russian Section runs no Sleepers.

Changchun-Dairen—21 hours

1st class—-Y-39 9-20.

2nd class—-Y-13 ¾.

Including Express Extra and Sleeping Berth Fees.

Dairen-Shanghai—2 days

1st class—-Y-40, single trip (return trip -Y-64.)

2nd class—-Y-25, single trip (return trip -Y-40.)

Nearly—15 days.

IMPERIAL RAILWAYS OF NORTH CHINA.

	1st Class	2nd Class
Mukden-Peking........	Mex $31.30	Mex. $19.60
Mukden-Yingkou......	Mex. $9.80	Mex $6.15

The Chinese Expresses connect with our own at Mukden and take about 26 hours between Mukden and Peking.

From the Far East to Europe.—Peking-Moscow.

Dep.—Peking, 5.30 p. m., daily, by Imperial Railways of North China.

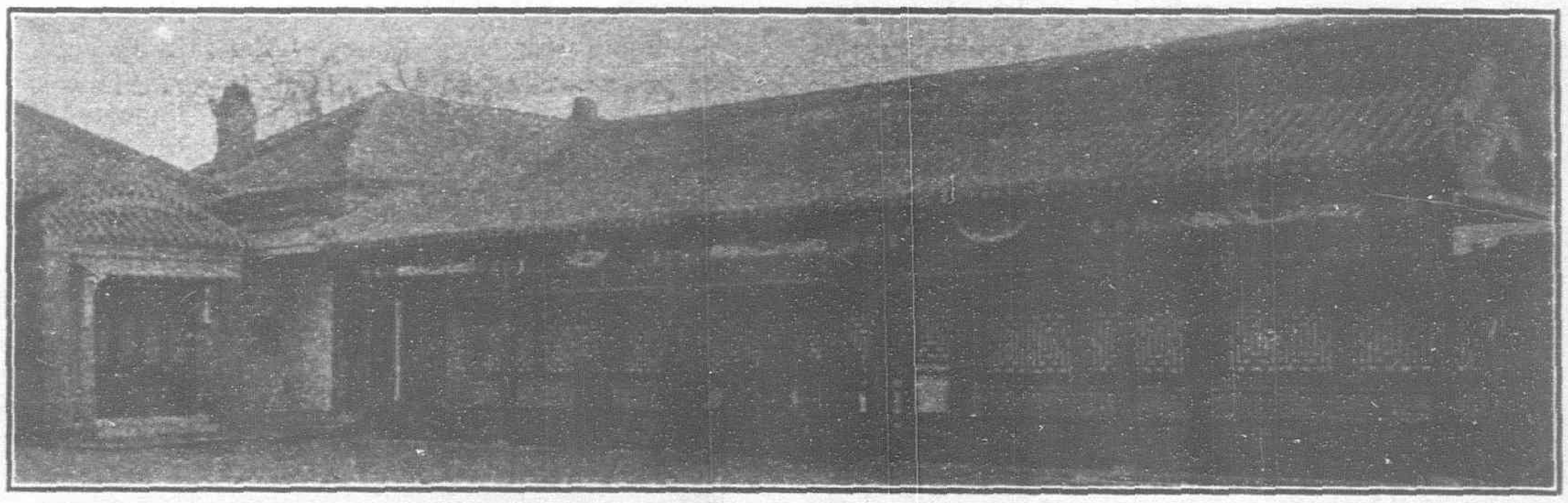
Arr.—Mukden, 6.45 p. m., on the second day.

Dep.—Mukden, 8.20 p. m., on Mondays, by South Manchurian Express:

Arr.—Changchun, 5 a.m., Tuesdays.

Dep.—Changchun, 5.40 a.m., Tuesdays, by Chinese Eastern Railway.

Arr.—Harbin, 4.10 p.m., Tuesdays.



SOUTH MANCHURIA RAILWAY'S TOWN OFFICES IN MUKDEN

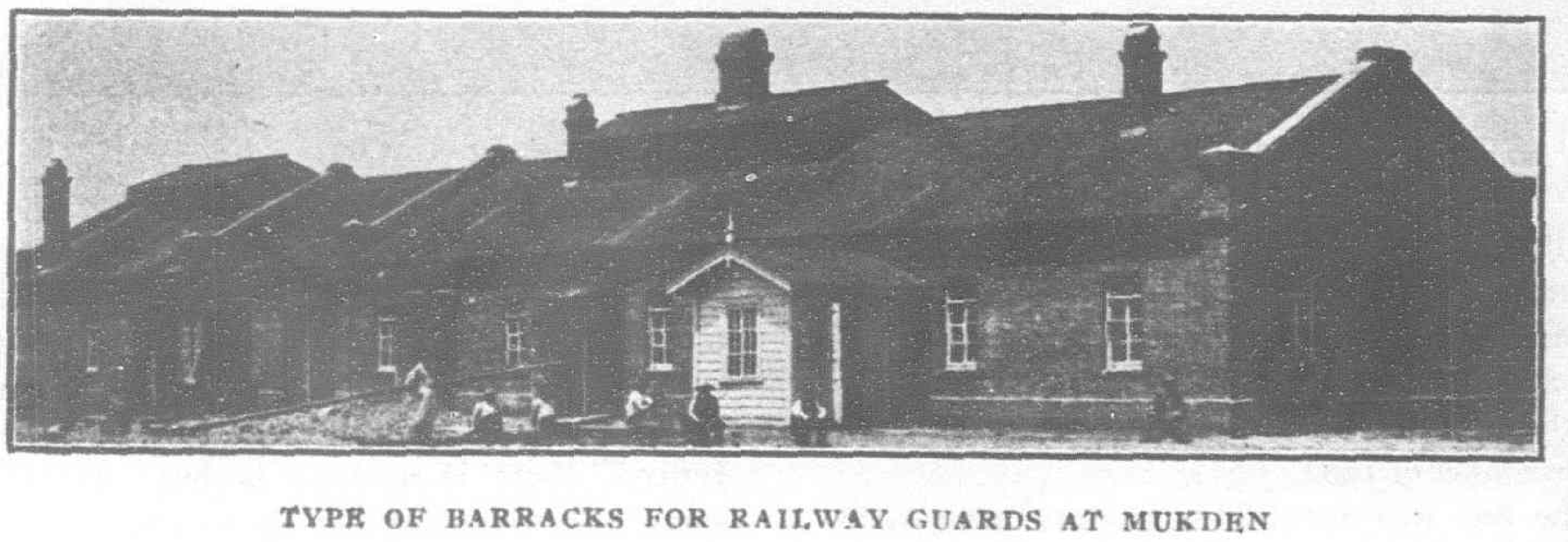
Dep.—Harbin, 6.25 p.m., Tuesdays, by Russian State Express:

Arr.—Moscow, 7.10 p.m., Thursdays week, Russian State Express.

Harbin-St. Petersburg.—The other Weekly Rusian State Expresses leave Harbin for St. Petersburg, on Sundays, at 6.25 p. m., the 1st class fare being Rbls. 298.95, including Express Extra and Berth fees, except Harbin-Kwangchengtzu Section, which runs no sleeping cars.

This trip takes in all 235 hours a little less than 10 days.

St. Petersburg-London.—The Expresses leaving the Russian Capital at 6 p. m. will land you in London, at 10 p.m. of the third day, taking about 53 hours and about Rbls. 98 for the fare.



TYPE OF BARRACKS FOR RAILWAY GUARDS AT MUKDEN

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*It connects with the International Train de Luxe, leaving Harbin for Moscow every Tuesday.

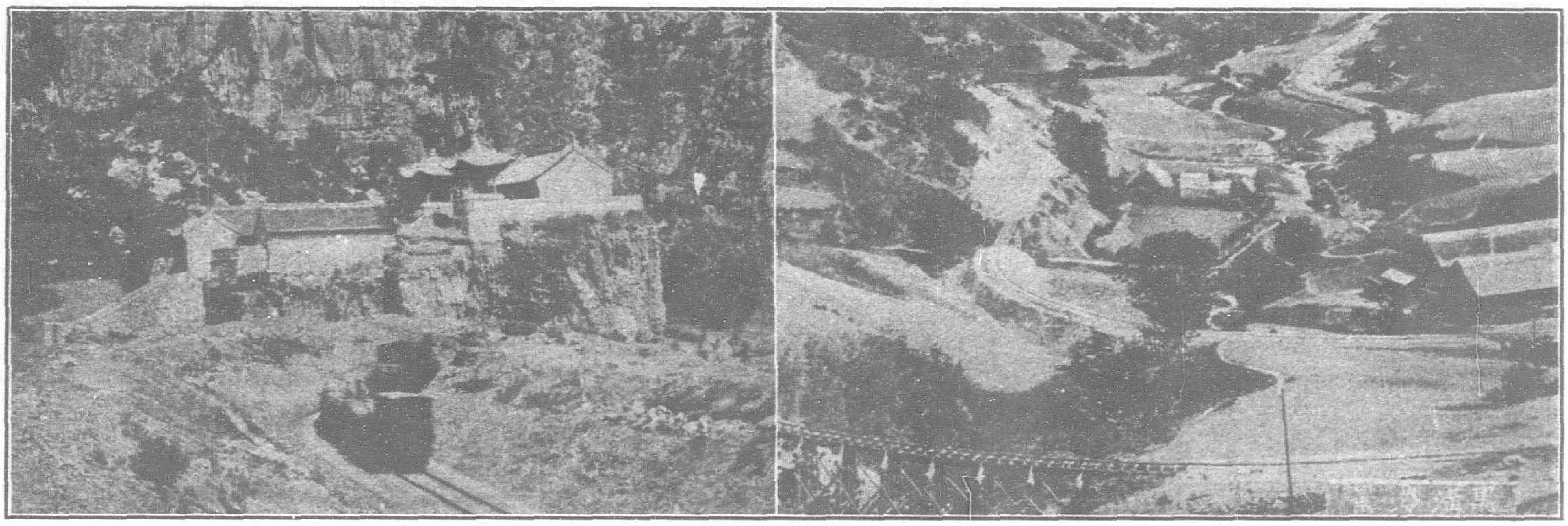
†It connects with the Russian State Express, leaving Harbin for St. Petersburg every Sunday.

§It connects with the Russian State Express from St. Petersburg for Vladivostock, leaving Harbin every Saturday.

‡It connects with the International Train de Luxe from Moscow for Vladivostock, leaving Harbin every Saturday.

THE ANTUNG-MUKDEN RAILWAY

Shortly following the occupation of Antung by the Japanese forces on May 1, 1905, owing to the almost impassable character of the mountain roads in this region and the necessity of facilitating a more rapid movement of supplies, the construction of a light railway was begun by their engineer corps and its extension continued with the advance of the army as far as Shichiaotzu, a point about 30 miles to the southeast of Mukden. The country to the north and west of Shichiaotzu, drained by the Taitzu River, a tributary of the Hun Ho, being quite level and ordinary methods of transportation comparatively easy, this point was made the terminus of the railway until August, 1906, when the Okuragumi, a large Japanese concern, received from the military authorities a contract to extend it to Mukden. The construction of this section, covering a distance of 33 miles, was finished in less than one and one-half months.

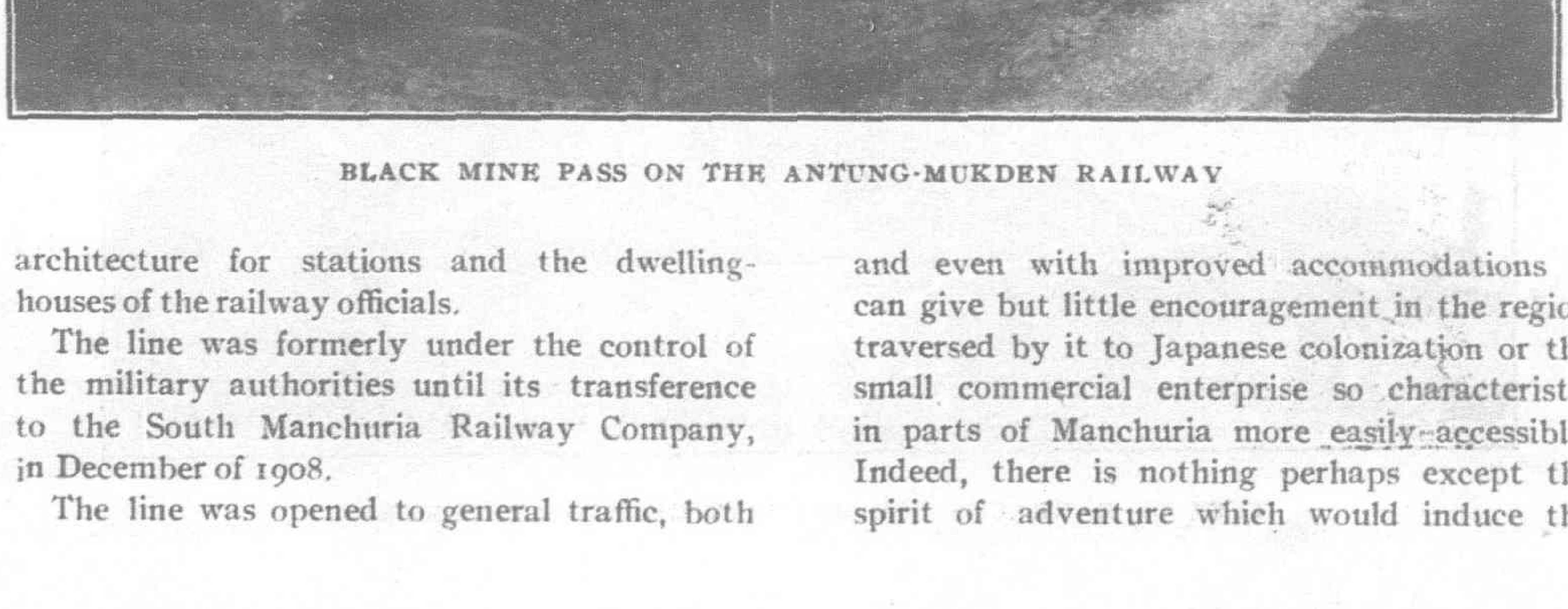


VIEW OF ANTUNG-MUKDEN RAILWAY

While the railway follows practically the same route as when first laid, considerable grading has since been done, unsafe wooden bridges have in several places been removed and the gullies filled in with crushed stone, and at a few points the distance has been shortened and crossing over the mountains made less dangerous by cutting through ledges. The work of improving the road is still going on, gangs of Chinese workmen, each under a Japanese foreman, are scattered along the entire distance, and ties as well as other railway materials seem to form the bulk of the freight at present handled. No tunneling has yet been done and probably will not be until the survey of the permanent railway has been completed.

Wherever it could be done without making the route excessively circuitous, the road has been constructed side by side with river-beds, sometimes following a comparatively straight line and again winding among the mountains. There are four points at which the line crosses the tops of the mountains and where the trains either circles around the spurs or moves from side to side after the manner of a heavy-laden team going up or down a hill. At one place the line recrosses itself in parallel tiers one above the other as many as five times. Frequently the steep grades (1 in 30), the sudden turns and unstable wooden bridges follow one another in such a manner as to make the descent especially dangerous. Accidents are said to have been of very frequent occurrence formerly, but improved grading with crushed stone and more careful methods of operation have greatly lessened their number.

The gauge is 2 feet 6 inches. The rails as well as the rolling stock, including locomotives and trucks, were supplied by the Baldwin Locomotive Works. The system possesses altogether 150 locomotives, 100 of these being of 16 and the remainder of 11 tons. The freight cars are all open and similar to those used for hauling sand in America. There are two sizes, one with a capacity of 2, and the other 5 tons. The entire carrying capacity of the railway is only some 1,200 tons. Besides these open cars there are a number with tops and designed especially for the passenger traffic. At both Antung and Mukden there are several wooden buildings, which were once used for the storage of military supplies but at present seem in large part to be lying idle. The intermediate points also have storing facilities, used principally for the supplies of the railway employes, as well as substantial buildings of Chinese architecture for stations and the dwelling-houses of the railway officials.



BLACK MINE PASS ON THE ANTUNG-MUKDEN RAILWAY

The line was formerly under the control of the military authorities until its transference to the South Manchuria Railway Company, in December of 1908.

The line was opened to general traffic, both freight and passenger, in August, 1908. Two schedule-time runs are daily made from each end in addition to more or less regular ones between some of the intermediate points. The journey from Antung to Mukden requires two days. The through trains both leave in the morning, one at 6 o'clock and the other at 9, and reach Tsaohohu (Sokako) 12 hours later. Operation after dark would of course be subject to a great deal of risk, so that passengers are obliged to pass the night at this point, resuming their journey on the following morning at the same hours as before. Tsaohohu is not at all a suitable place to recover from the day's fatigue. It has a number of Chinese inns and one in Japanese style, neither particularly inviting to the foreigner. The traveler must bring his luncheon with him to Antung, as neither food nor drink can be secured until reaching Tsaohohu, and unless he is sure of satisfying his hunger with *cuisine japonaise*, which is all that is to be had here, he should equip himself at Antung with two days' subsistence.

At present, however, the importance of this railway as a channel of immigration is slight and even with improved accommodations it can give but little encouragement in the region traversed by it to Japanese colonization or the small commercial enterprise so characteristic in parts of Manchuria more easily accessible. Indeed, there is nothing perhaps except the spirit of adventure which would induce the merchant, prospector or immigrant to avail himself of this route for reaching interior Manchuria. The train leaving at 9 o'clock consists entirely of freight-cars. Two or three of these may be loaded with freight, but the most of them are intended for passengers, who clamber into them pell-mell and struggle among themselves for squatting room. The discomfort of traveling in this manner during a heavy rain or a cold north wind can readily be imagined. The earlier train has attached one or two of the passenger-cars already mentioned. These, however, are not any more comfortable to sit in than the freight-cars and preferable to them only in affording shelter from inclement weather. In fact, the experience of traveling by this route probably helps one to form a good picture of what the railway was in its early days and the distance, 187 miles (100 as the crow flies), is undoubtedly the greatest covered by a line of its kind. The average speed is about 9 miles an hour, although as high as 12 miles is reached on the level.

MUKDEN STATION OF THE SOUTH MANCHURIA RAILWAY

As already stated, the greater part of the freight handled consists of railway supplies. The amount of general goods carried is almost too small to be considered, and the supposition that the absence of a custom house at Antung has been taken advantage of to ship large quantities of merchandise into the region made accessible by this railway is not borne out by the actual conditions. The rate, 10 sen (5 cents) a ton per mile, for most commodities is so high as to leave only a small margin of profit and in some cases is entirely prohibitive.

The standard gauge railway to connect Antung with Mukden, it is expected, will follow the same general course as the present one. Since its completion, however, will probably require the larger part of three years, the new company is to continue the operation of the present line, and will undoubtedly carry on improvements and at the same time considerably extend the *modus operandi.* With its present narrow gauge, however, this railway, even when worked to its utmost limit, can give no more than a very small stimulus to the mineral, agricultural, industrial or commercial development of the region which it affects.

RAILWAYS IN NEW SOUTH WALES

The development of railways in New South Wales is referred to by *Hardware and Machinery* and that journal calls attention to the fact that for the third section of the North Coast Railway (Gloucester to Taree), N.S.W., the tender of Rhys-Jones, Carter & Co., Ltd., at £455,365 was accepted. Mr. Surveyor Jamieson is at present engaged surveying the proposed deviation of the railway from Taree northwards, crossing the Dawson River near the bridge at Cundletown. If this deviation is decided upon, it will admit of one station in the lower Manning district being alongside deep water, and willprovide a central railway port at which passengers may entrain, and at which produce may be shipped from river passenger and cargo steamers. The deviation, it is claimed, also provides better grade than the route originally surveyed, and is less expensive.

The Gloucester-Taree Railway, above referred to, is the most important work of the kind undertaken in the State for many years. Apart from the fact that it will form a link in a great railway system, it is estimated that it will provide constant work for about 1000 men for nearly three years. The section will have a length of about 44 miles, and under their contract the successful tenderers have three years in which to complete the job. The section embraces some of the heaviest work on the whole line, and a great many streams have to be spanned. Tenders for the necessary steel bridges were accepted some time ago, and the contract for the building of the section provides for the delivery of the bridges at Darling Harbour, their conveyance to the different sites, and the erection of the structures. There are two or three tunnels on the line, but none of them are of great length. The earthworks, however, are very heavy. Five tenders were received, and it is a remarkable fact that never in the history of railway construction in the State has the competition been so keen. The tendering was done on the schedule basis and the lowest tender received was very close to the departmental estimate, while a sum of only £9000 separated the four lowest tenders, a sum that is insignificant in comparison with the amount of the contract.

The Parliament of New South Wales has referred to the Public Works Committee the proposal for constructing a line of railway from Moree to Mungindi. The line will be 66 miles long, and the estimated cost is £285,889. The committee has also been asked to report upon the expediency of constructing a line from Coramba to Dorrigo. In introducing the matter, the Minister said the country was very precipitous, and could be developed only by means of a railway. Although the route was only 37 miles long, the estimated cost of a line of standard gauge, grade, and curves was £667,158. It would be possible, he said, to use Shay engines on a line of the standard gauge, but with sharper curves and steeper grades. The estimated cost of such a line would be £230,000. A further estimate had been made of a line with a narrow gauge, and the same curves and grades that would be used on the Shay line, and the cost of such would be £190,560. The Government had, however, decided to preserve the standard gauge, and to adopt the Shay system. It was also resolved to refer to the Works Committee proposals for the duplication of the Great Western line from Emu Plains to Blaxland; for the making of a deviation of the South Coast railway line between Waterfall and Otford; for the construction of a line of railway from Hermidale to Nymagee; of a line from Perak Hill to Parkes; of a line from Bega to Eden; of a tramway from Bomaderry to Jervis Bay; of an electric tramway from Military-road, North Sydney, to Cremorne Point, and of an electric tramway from Waverley to Bronte.

TIN MINING COMPANIES

Reviewing the history of the tin mining companies of the F. M. S. the *Malay Mail* directs attention to their respective standing in the share list and says:

"Of 27 tin mining companies, it appears that only 11 have ever paid a dividend. With one exception the remaining 16 companies were formed in 1906 or 1907, so it is evident that the investor in mining shares must be prepared to wait for some little time for dividends. The one exception is Rahman Tin, a 1905 company, but we fancy this concern must be paying, as the selling price of the £1 shares is $15. Of the dividend paying mines five have their shares quoted above par and six below. The lucky five are the Gopeng Tin Mining Co., New Gopeng Mining Co., Kinta Tin Mines, Tronoh Mines, and Bruseh Hydraulic, all of which have paid a dividend or interim dividend in 1908 except Tronoh, which paid a 25% dividend in 1907. Of the remaining six one paid a dividend of 57½% in 1903 and the $10 shares are now quoted at $1. Another paid 35% interim dividend in 1907 and holders are willing to sell their $10 shares for $4. A sterling company formed in 1904 paid 45% for year ending 30.6.07 and the £1 shares are now worth $3.25 in the market. A dollar company formed in 1903 paid 10% for the year ending 31.3.08 and it appears that the buying public value the $10 shares at $7, and so the story goes on.

"A perusal of the general list is more encouraging as regards the regularity of the dividend and the value of shares in those cases where dividends are earned at all.

"But when we look at the output for December we find that two of the companies which have not paid a dividend yet come second and third on the list to Tronoh which remains the greatest producer; whilst the fourth place belongs to the company whose £1 shares range between $3 and $4: yet this company had an output far in excess of the 1908 dividend payers. We do not know, however, how much of this is tribute work. The capital of this company is larger than that of the dividend payers but even when comparing capital and output it is difficult for the investor to arrive at any decision as to the best investment. An Investor's Guide giving the history of each company up to date and some general remarks on the present and future prospects of the mine would be a welcome addition to local literature."

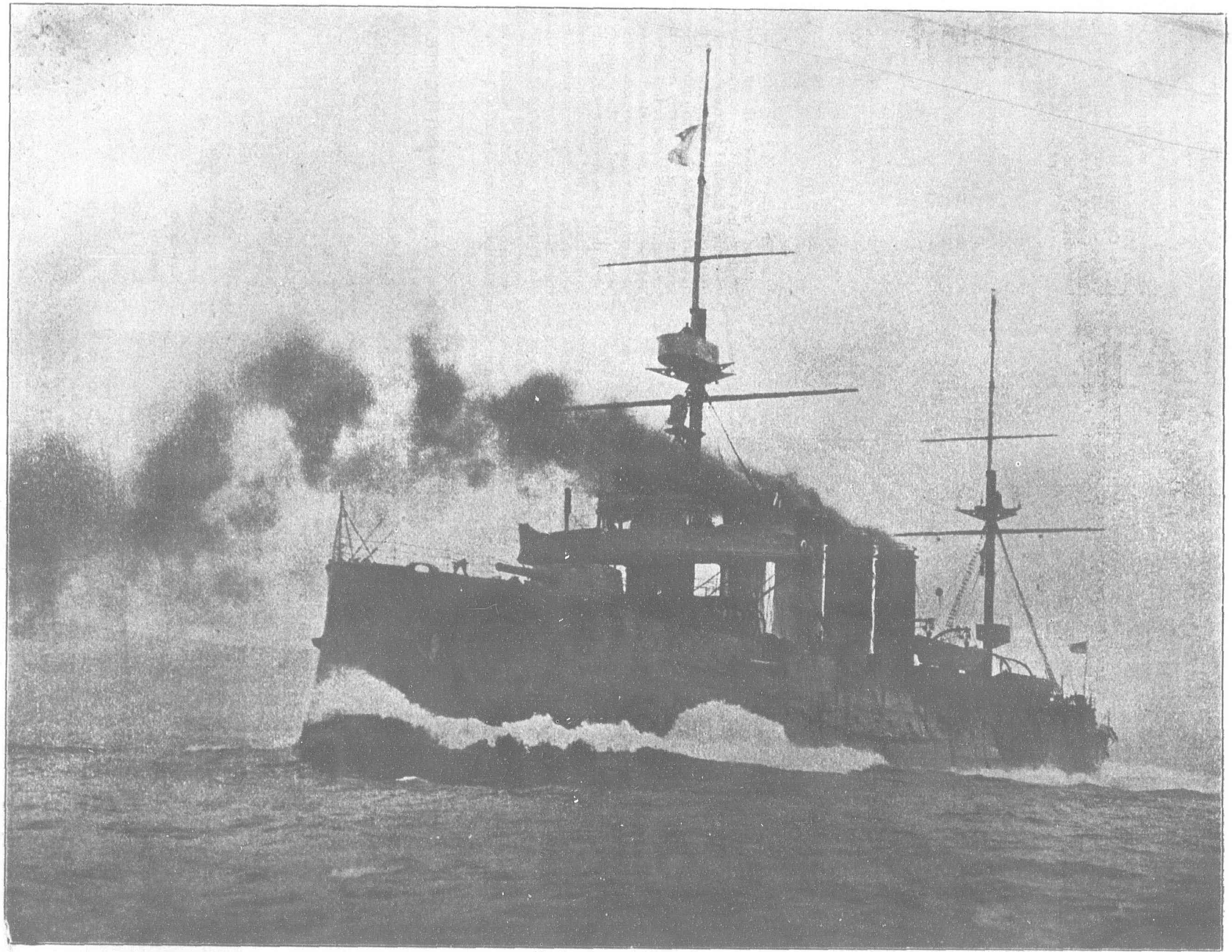
F. M. S. TIN OUTPUT, FEB. 1909

	Piculs.
Belat	382
Bruseh	270
Gopeng	495
Kanaboi	155
Kinta	330
Kledang	405
Kuantan	52
Lahat	909
New Gopeng	80
Pahang Consolidated	1,060
Pusing Lama	484
Rambutan	290
Redhills	475
Royal Johore	38
Salak South	239
Sempam	61
Serendah	315
Sipiau	106
Tekka	390
Tronoh	1,343

GOLD OUTPUT

Oriental Consolidated for January, value $122,912 gold.

Raub Australian Gold Mning Co. for February, 1225 oz. smelted and 123 oz. cyanide.



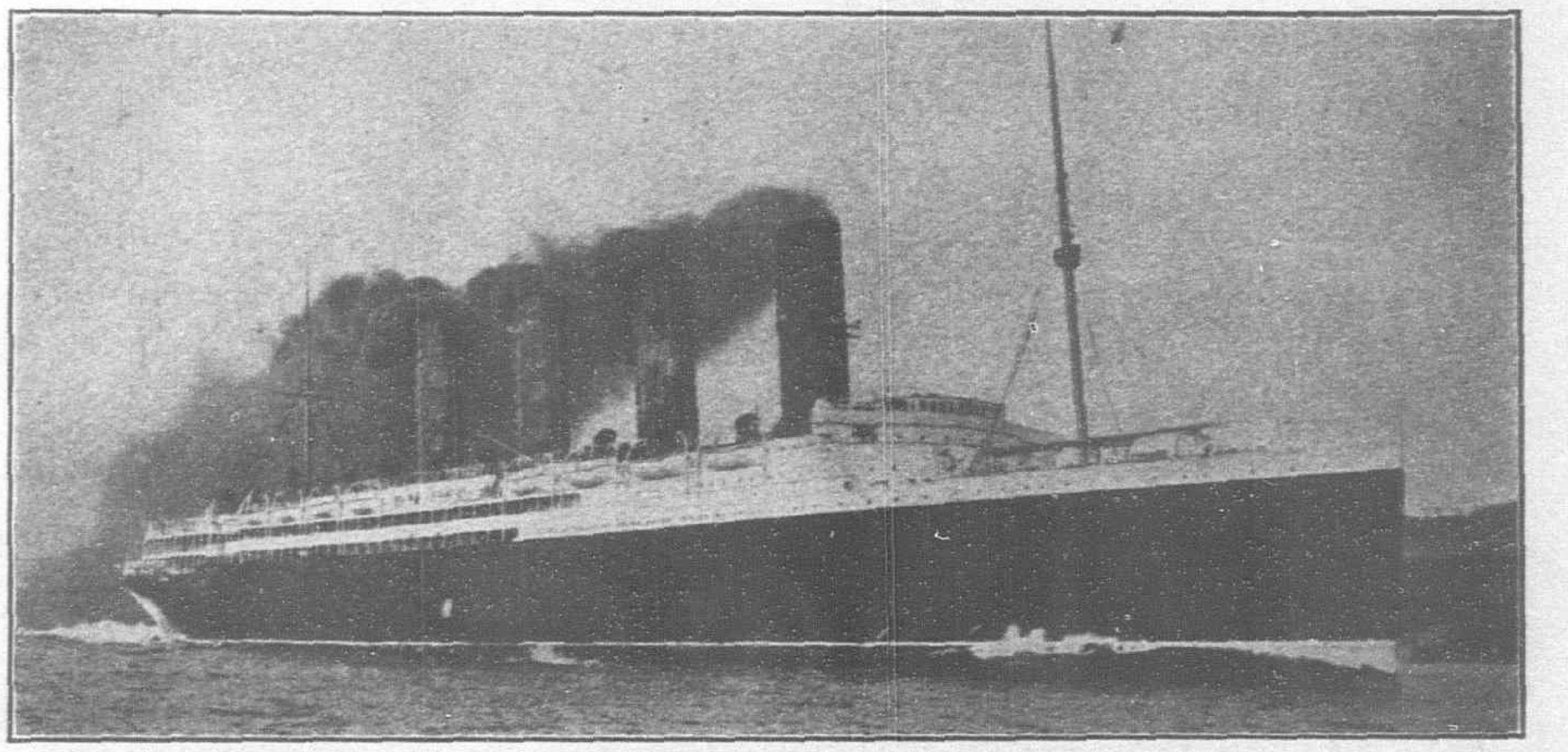
H. M. S. "ANTRIM"
First Class Cruiser—Displacement, 10,720 Tons; I. H. P. 22,000; Speed, 23 knots.
(BUILT BY JOHN BROWN & COMPANY, LTD., CLYDEBANK, SCOTLAND)

JOHN BROWN & COMPANY, LIMITED

BUILDERS OF BIG SHIPS

Founded between fifty and sixty years ago, John Brown and Co., by enterprising development and judicious combination, have now evolved an organization so comprehensive that they can produce, complete for service, every type of warship and merchant vessel, with all accessories. The Atlas Steel Works at Sheffield, which date from 1854, produce the iron, steel, armour and the many castings and forgings necessary for all vessels. The Clydebank Shipyard, constructed in 1873, and acquired by the company in 1899, has built a long succession of warships of varied design for many navies, and some of the finest examples of high-speed passenger steamers in successive epochs in the history of naval architecture. The Norfolk Works, at Sheffield, of Messrs. Thomas Firth and Sons, Limited, became practically, although not nominally, allied with John Brown and Co., Limited, in 1903; and as they have made castings for turbine machinery a special study, and have long been noted for their projectile and ordnance forgings, they contribute in an important degree to the general efficiency of the company. Still later the company acquired a large interest in the Coventry Ordnance Works, Limited, in association with Messrs. Cammell, Laird, and Co., Limited, and the Fairfield Shipbuilding and Engineering Company, Limited; and are thus in a position not only to build the hull with its armour, and to construct all the machinery, but to supply the armament and projectiles, of all types of warships. This year the company became allied to Messrs. Harland and Wolff, Limited, of Belfast, by an exchange of shares; and although the two shipbuilding works will continue to be separately managed, the interchange of experience must be a great advantage, and must influence progress in steam construction, apart altogether from financial benefits, with which we are not here concerned.

The Atlas Works.—In dealing with the establishments of the company and their work, we may take, first, the Atlas Works, Sheffield. The greater part of the 36 acres within the boundaries of these works are covered with buildings. There are in the works forty-three furnaces for producing the iron and other metals used in the various processes of manufacture, which necessitate the use of 400 tons of coal and 100 tons of coke each day of the year. There are ten hydraulic presses, including one of 10,000 tons power, and thirty-three steam-hammers, some of them 80 tons in weight, to work the hot ingots down to the approximate form of the finished product. For manipulating heavy weights there are ninety-four travelling-cranes, two of them having a capacity of 150 tons, one of 100 tons, and most of the others 50 to 60 tons; in addition there are fourteen locomotives in the works, for conveying the products from one shop to another on the many miles of railway running like a network through the establishment. There are 307 machine-tools, many of them of great power, for planing, turning, boring, and otherwise shaping the forgings and castings to finished dimensions. These tools are driven by prime movers developing an aggregate of 12,000 horse-power, which is transmitted to the tools largely through the medium of electricity.

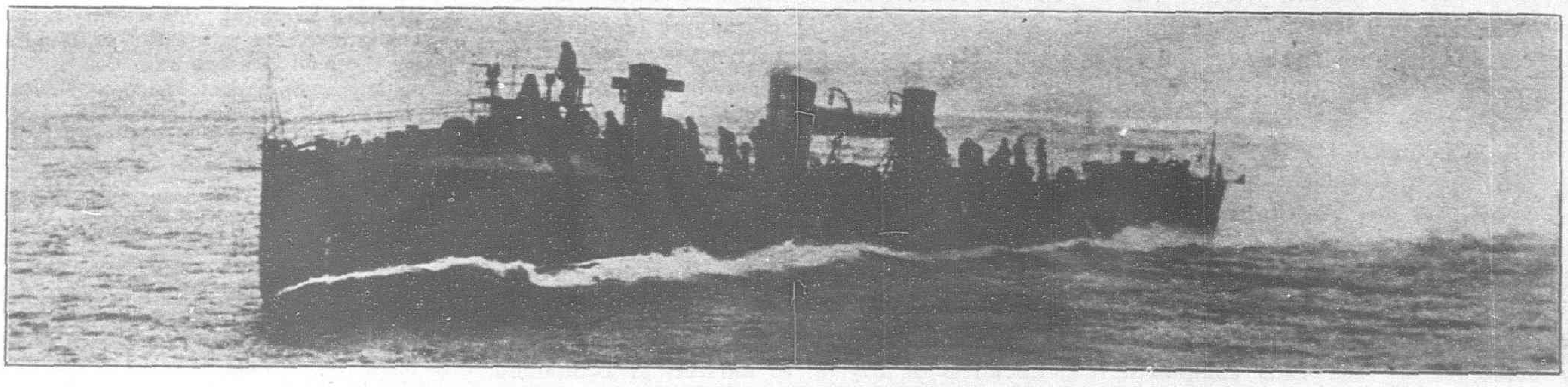


S. S. LUSITANIA, BUILT BY JOHN BROWN & CO., LTD.

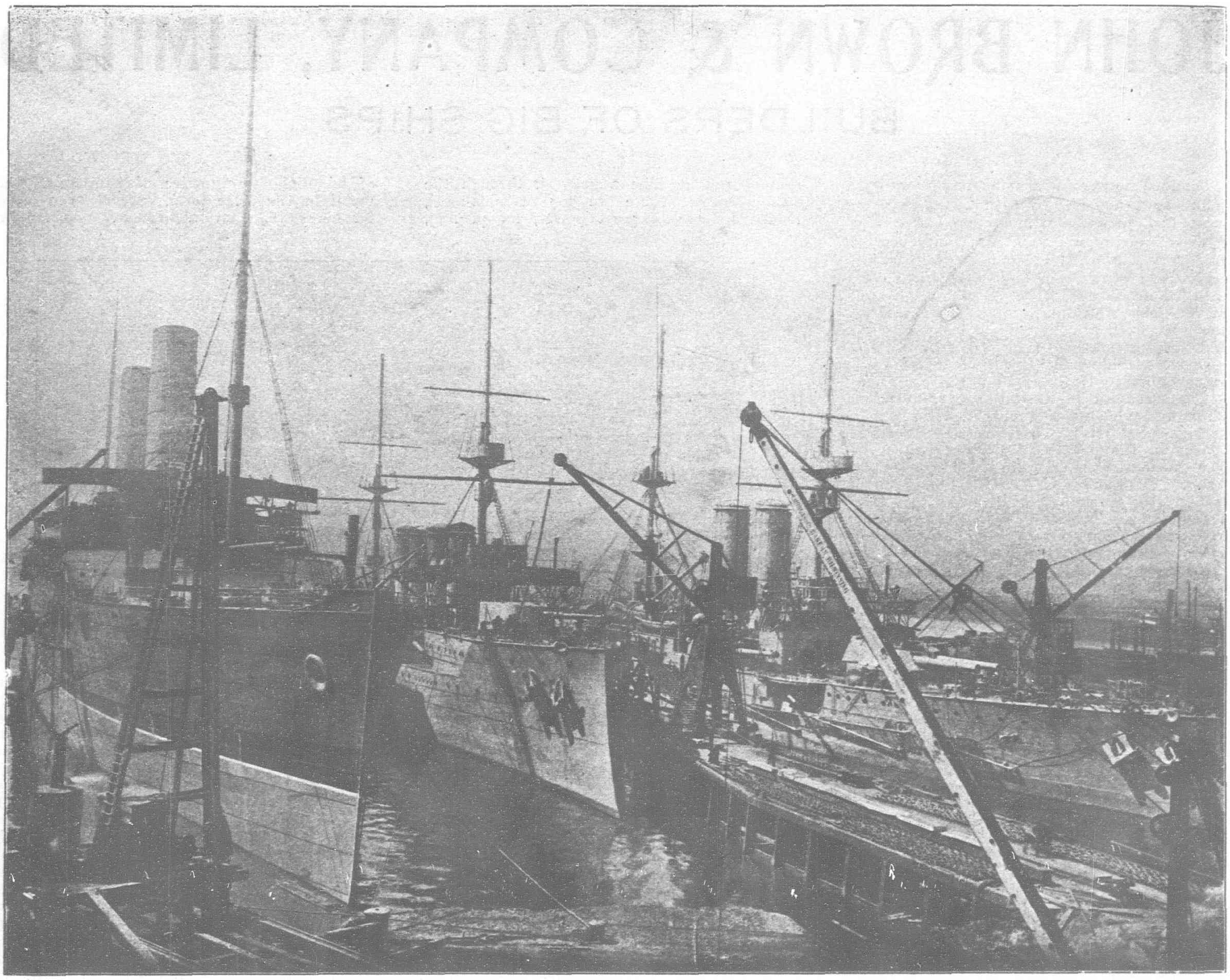
Although the area occupied by the Atlas Works at Sheffield has increased twelvefold since the works were first commenced, the actual turnover of the company has multiplied one-hundred-fold—from 30,000*l.* to 3,000,000*l.* sterling per annum. This fact in itself affords a clear evidence of the beneficial influence of modern mechanical methods. The output fifty years ago probably did not exceed 5,000 tons per annum, whereas to-day it is close upon 100,000 tons. The 20,000 workers employed in all the works of the company earn in wages about 1,250,000*l.* per annum.

The Manufacture of Armour.—Messrs. John Brown and Co., Limited, were among the first firms to manufacture steel; first by puddling, next by the Bessemer process, and finally by the Siemens-Martin furnace. Bessemer found in the firm his first practical collaborators, and this greatly helped to overcome the prejudice then existent against his process. The firm, too, were among the first to manufacture steel for shipbuilding; but a greater step forward, and one of national importance, was the commencement of the manufacture of armour-plates. This was in 1859, when the first armoured ships of the British Navy—the Warrior and Black Prince—were laid down. Instead of adopting the practice of hammering the metal in the plate form, as had been usual for many years for all armour, Messrs. John Brown and Co. put down a mill and rolled the plates, first by the welding of a succession of bars together, and, later, by the use of large ingots. The wrought iron armour was adopted for all ships for several years, the thickness increasing from the 4½-in. plates of the Warrior to the 14-in. plates of the Dreadnought of 1875; although the Inflexible, in 1881, had a double plating, making 24 in. in all.

About the year 1877 guns had so increased in power that it was considered impossible to produce a wrought-iron plate, which, while of reasonable thickness, could withstand the attack from the later 80-ton guns, and the compound plate then came to the front. This was a plate with a steel face and a wrought-iron back (the former representing about one-third of the total thickness), which, under the patent of the late Mr. John Devonshire Ellis, for so long the chairman and managing director of Messrs. John Brown and Co., were united by a process designed to ensure not only a perfect weld, but a comparatively hard face—an important feature entirely lacking in the wrought-iron armour. This face offered so much initial resistance that the projectiles of the time were broken up, or if they struck at an angle, they glanced off. The all-steel plates, introduced about the same time, offered, perhaps, equal resistance to attack, but lacked toughness, which in the case of the compound plate was supplied by the iron back. As the steel plates were thus more liable to break up, compound plates continued in use where thick armour was required.



H. M. S. TORPEDO BOAT DESTROYER "ROCKET," "SHARK," etc.
Displacement, 280 tons; I. H. P., 4150; Speed, 27½ knots.
BUILT BY JOHN BROWN & CO., LTD.



(Cunard Turbine Steamer "CARMANIA") (H. M. S. "ANTRIM") (H. M. S. "HINDUSTAN")

FITTING-OUT BASIN—CLYDEBANK SHIPYARD.
JOHN BROWN & COMPANY, LIMITED.

As far back as 1871, the idea had occurred to the late Mr. J. D. Ellis of applying to iron armour the principle of cementation; and a patent having been applied for, a plate so treated was subjected to firing test. The result, however, was not encouraging, owing to the omission of chilling treatment, which at that time was thought impracticable in the case of such large masses as armour-plates. The patent was, therefore, allowed to lapse, and nothing further was done for the perfection of cemented armour at that time. In 1901, however, Captain Tresidder, a director of Messrs. John Brown and Co., devised a method of chilling armour-plates, for which various British and foreign patents were taken, in the specifications of which mention was made of the suitability of the process for giving dead hardness to the face of any plate where high carbon was present, whether the face was separately made, as by the Ellis compound process, or super-carburised by cementation, as tried by Mr. Ellis on the occasion above referred to.

In connection with this important development in the process of hardening armour, we have further instances of the many cases wherein scientists in different parts of the world work simultaneously, without knowledge of each other's research, towards the same end with similar issue. Harvey, an American engineer, had been experimenting contemporaneously with Captain Tresidder to produce a cemented and chilled plate, and there was one day between the respective applications for patents—the one in America, and the other in England. The, Sheffield inventor's date was the earlier; but ultimately, after much negotiation and consulting of lawyers, forces were joined for commercial reasons. This combination of the cementation and chilling processes marked a great advance: a 7-in. plate so treated being a match for a 6-in. shot of 100 lb. striking with a velocity of 1950 foot-seconds; whereas formerly it required a thickness of 10½ in. of all-steel or compound armour to meet this attack.

There was a general feeling, soon after this plate was adopted, that some degree of finality had been reached; but Messrs. Krupp, of Essen, sprang a surprise upon all by perfecting a process whereby an all-steel plate made of excessively high-grade material could, by an elaborate course of treatment, be endowed with not only a face as hard as glass, but also a back as tough as, and much stronger than, wrought iron. The Krupp plate is the plate of to-day; and some idea of its immense resisting power will be formed when it is stated that it is a match for a blow which would conquer a wrought-iron plate of from two and a-half to three times its thickness. As a matter of fact, plates made by the Krupp process for the broadside of ships seldom now exceed 9 in. in thickness, but for barbettes the usual thickness in first-class ships is 12 in.

The Krupp process was taken up by Messrs. John Brown and Co., and we may indicate briefly its salient features. The material used in the latest plates is a multiple alloy of iron and other metals, and is excessively delicate: so much so, that a large ingot cast from it, if laid down to cool, would almost inevitably fly to pieces. Messrs. John Brown and Co. have their steel furnaces, therefore, close to the hydraulic press. After the steel has been tapped into the ladles, these are hauled along on rails, and raised by an hydraulic lift to higher-level rails, which run over the casting-pit

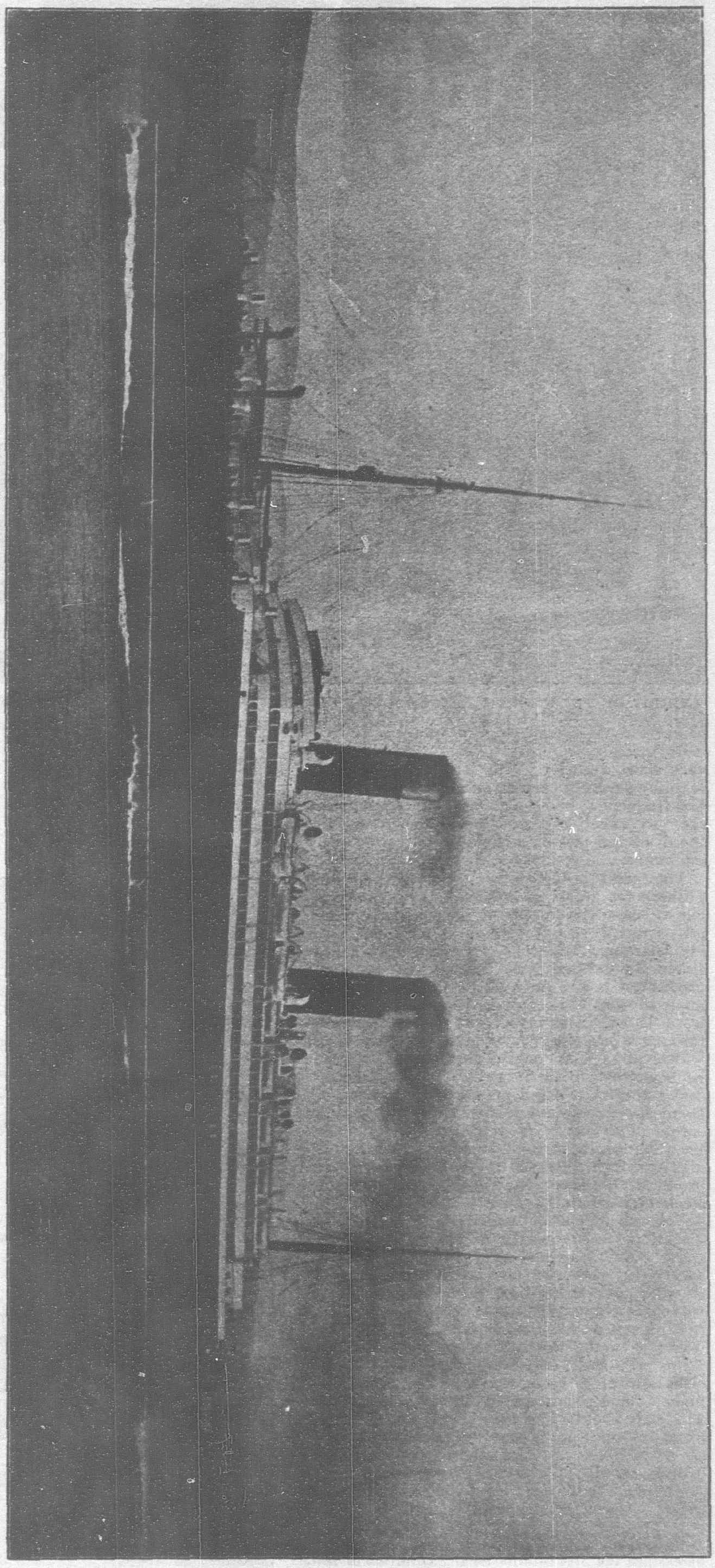
Here the steel is teemed into a trough, and thence direct into the huge ingot-moulds. As its melting-point is so high, it solidifies upon losing quite a small proportion of its heat, so that it can be taken almost at once to the reheating furnace, preparatory to the treatment under the 10,000-ton press. There it is slabbed down to approximate thickness for rolling in the large mill, special steps being taken to remove a peculiarly adhesive scale that forms upon it. During these several operations the plate frequently requires re-heating, and furnaces for the purpose are provided in convenient positions. The plate is not allowed to cool after being rolled, but is at once passed to the re-heating furnace, and when brought to the required temperature undergoes the first stage of special heat treatment peculiar to the Krupp process, which, if properly conducted, renders it extremely tough. This continuity of treatment and care to avoid cooling is not dictated by economical considerations, but is rendered necessary by the sensitive nature of the material. After the heat treatment, the plate is planed and machined to approximate dimensions, and then is passed to one of the sixteen cementation furnaces in the works, where the face becomes chemically harder by absorption of carbon from charcoal, with which its face is kept in contact during a long exposure to high temperature. The plate is further submitted to several heat processes. It is then set, under a 6000-ton bending press, to the approximate form which it will have when fitted on to the ship. Lastly, it undergoes a final heat process, followed by chilling, whereby it acquires an intense face hardness. Any alteration or machining subsequent to this last treatment has to be done with powerful electric grinding-machines, as no cutting tools can make any impression upon the face. The holes in the back for the bolts, which attach the plates to the ship, are afterwards bored and tapped and the plate is then finished and ready for the firing test, or for despatch to the Clydebank or other naval yard.

The appended Table shows the figures of merit for the various types of armour, as constructed by the company in the successive stages of the evolution of armour. This shows the relation of the thickness of the wrought iron that would have been perforated by the attack to that of the actual thickness of the plates fired at. Thus the 6-in. Krupp plate with standsa blow which would have perforated a wrought-iron plate 17 in. thick, or 2¾ times its own thick ness. Therefore, its figure of merit is 2.75.

Quality of Plate.	*Figure of Merit (being Relative Thickness of Wrought Iron to giveEqual Resistance).*
Wrought iron	1
Compound of plain steel	1 20 to 1 25
Harvey	1 9 " 2 2
Krupp	2 3 " 2 8

Heavy Forging Work: Shafting.—As typical of forging work, reference may be made to the shafting made at the Atlas Works. Hydraulic presses have for many years been used at the Atlas Works, to the exclusion of hammers, even for light work, as the gradual squeezing action of the hydraulic press is for all purposes more effectual and less severe on the metal than the sudden blows of a hammer. One of the largest shafts made for a land engine was completed by the company in 1901. It was a crankshaft of over 80 tons weight for the engine of an electric-traction station.

Messrs. John Brown and Co. have several exceptionally powerful presses, ranging from 10,000 tons downwards. The largest press is very rapid in its work, upwards of 25 strokes per minute being easily attainable. The hydraulic pressure is supplied by a three-cylinder high-pressure pumping-engine in close proximity to the press, and working direct without an accumulator. An air vessel is fitted to maintain a constant pressure and supply of water to the suction valves; and thus there is the minimum of noise and vibration, when the engines are running under full pressure at the high rate of 100 revolutions per minute. The periods during which the maximum power is applied to the press are very frequent, owing to the rapidity of its operation, but they are of



TWIN-SCREW STEAMER "CARONIA"

BUILT BY JOHN BROWN & CO., LTD., FOR THE CUNARD STEAMSHIP CO., LTD.

Length (Extreme) 676 Ft. Breadth, 72 Ft. 6 Ins. Depth, 60 Ft. 3 Ins.
Gross Tonnage, 19,660 I. H. P., 21,870 Speed, 19½ Knots.

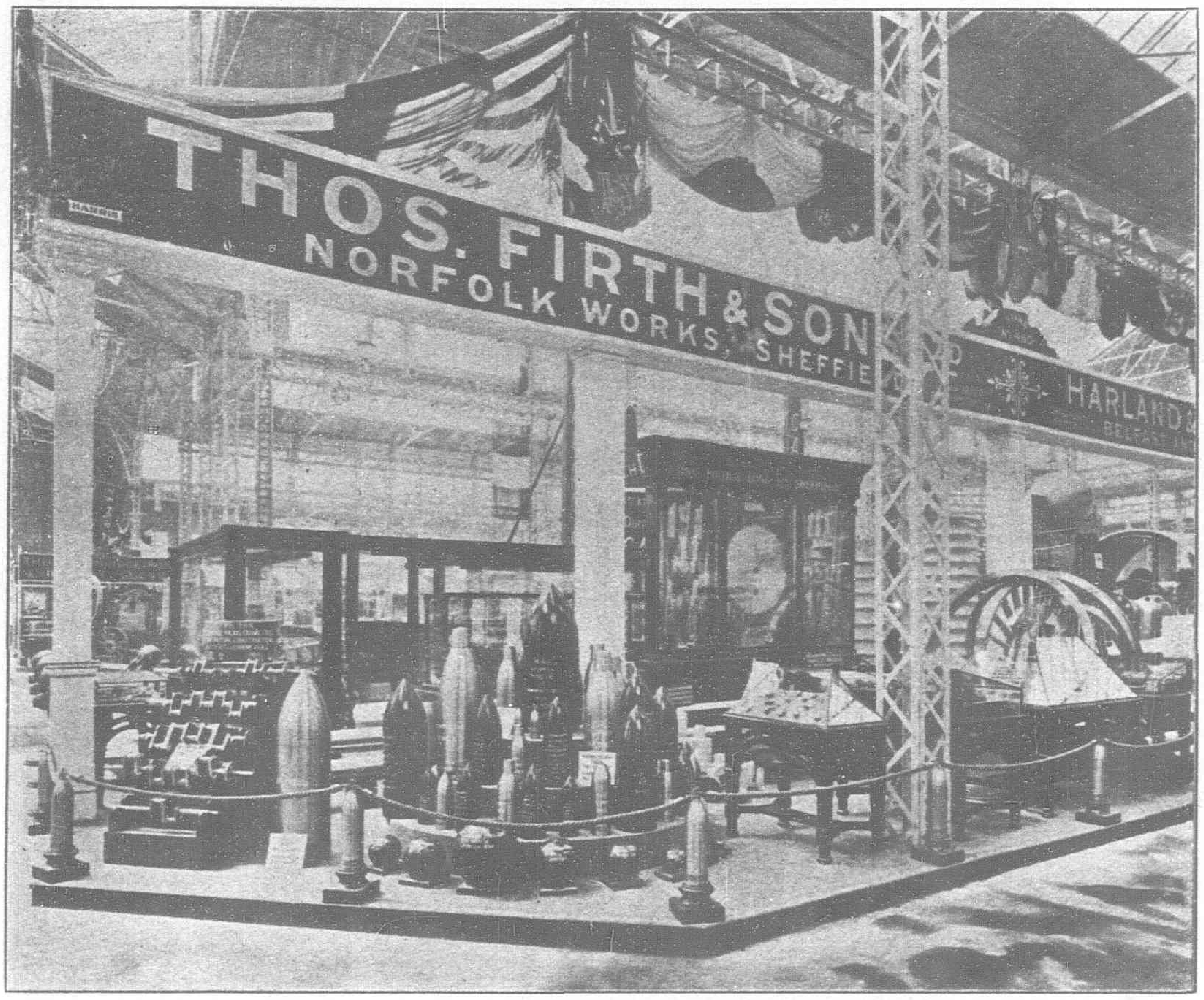


EXHIBIT OF THOS. FIRTH & SONS, LTD., NORFOLK WORKS, SHEFFIELD, ENGLAND, AT THE FRANCO-BRITISH EXHIBITION, 1908.

very short duration. The load on the engines is thus a severely varying one, alike as to degree and frequency; but the governing arrangements are so effective that the influence on the speed of the pumping-engine is reduced to the minimum.

The press is fitted with special hydraulic gushers for working hollow forgings, such as gun-tubes, cylinder-liners, etc., as with such jobs specially good results are obtained by a rapid stroke. The work of forming such hollow forgings possesses some special features. The ingot-head is cut off in the lathe, and a hole is made through the centre in a horizontal machine by a D-bit. The ingot is then reheated in a furnace at the forge, and afterwards conveyed to the press anvil on the mandril on which it is ultimately to be forged. The forging-press draws the ingot down on the mandril, the job being supported meanwhile from the hydraulic crane. Portions from 5 ft. to 8 ft. in length are thus forged at each heat, and hollow forgings varying in length up to 50 ft. have been produced by the company with very satisfactory mechanical results.

The machine-shop associated with this forging department consists of three bays, two of them 160 ft. long and 35 ft. and 31 ft. wide respectively, while the third is 194 ft. long and 52 ft. wide; the height of 34 ft. enabling the 70-ton travelling-crane to conveniently manipulate the immense jobs undertaken without interfering with the work done on the floor. The shops are well equipped with the heaviest class of machine-tools, nearly all the well-known makers being represented in the department. There are about 15 lathes, varying from a length of 80 ft. by 48 in. centres to a length of 50 ft. by 66 inch centres, and all are triple or quadruple-geared.

Amongst the interesting tools in this department is the crank "pinning" machine. When the Admiralty and some foreign Governments commenced using double-throw crankshafts in large engines, so as to bring the balancing forces of the reciprocating parts as near to each other as possible, with a view of reducing vibration, it was found impossible, in turning the crank-pins in an ordinary lathe, to overcome a certain amount of spring which made it difficult to maintain true centres. A large crank-pinning machine was therefore erected at the Atlas Works at great expense. In this machine the crank, instead of rotating as in the ordinary lathe, lies in a rigid position while the cutting-tool rotates; and thus the pin can be made absolutely round and perfectly true with the axis of the crank in every direction. This splendid tool consists of longitudinal and cross-girders supporting a large frame free to be moved along the girders, and fitted with an internal wheel carrying the tool-boxes. These boxes can be advanced to, or retired from, the crank-pin centre, and at the same time are narrow, so as to be able to work between the crank webs. The crank rests upon, and is bolted securely to, the girders of the machine; while the wheel revolves and the tools operate on the pin and the ends and sides of the web without necessitating any re-setting of the job.

Boiler and Furnace Work.—The firm have taken an equally successful part in connection with boiler shells, flues, and tubes. A special press for flanging boiler-ends was laid down in 1879; and as soon as the Siemens open-hearth process for making steel was introduced, furnaces were put down, and, in addition to the rolling of plates, the casting of propellers, propeller-bosses, and the like was undertaken. The triple-compounding of steam-engines encouraged the use of higher boiler pressures, so that a demand sprang up for heavier shell-plates, as well as for a form of furnace that would offer a greater resistance to collapse than the smooth cylindrical type hitherto used. This led to the production at the Atlas Works, in 1885, of the patent ribbed flue, which proved very advantageous to the marine engineer. The latest form of these furnaces was adopted in the Lusitania, as illustrated on page 30. The plant for the manufacture of these flues includes many specially-designed appliances, the whole aim

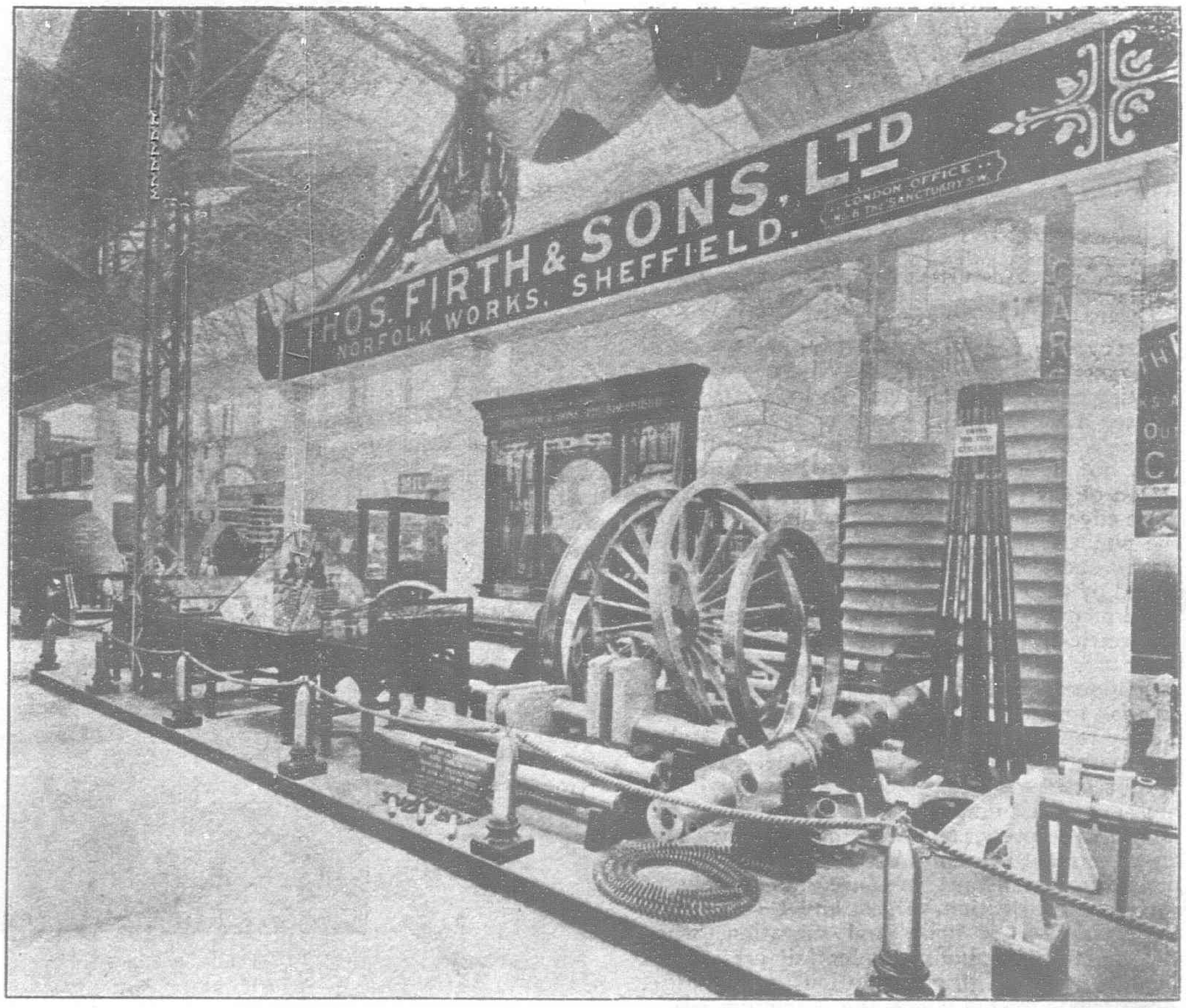
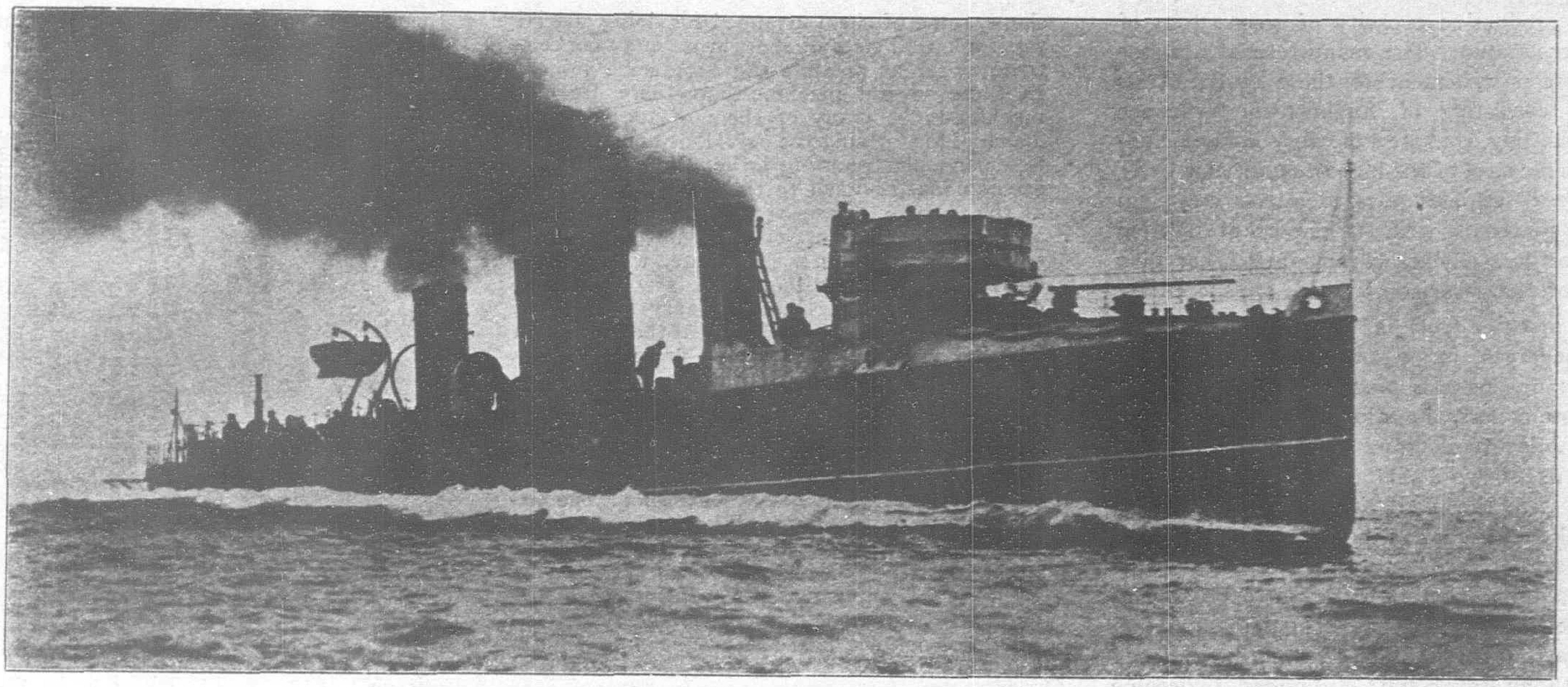


EXHIBIT OF THOS. FIRTH & SONS, LTD., NORFOLK WORKS, SHEFFIELD, ENGLAND, AT THE FRANCO-BRITISH EXHIBITION, 1908.

At the Franco-British Exhibition, held in London in 1908, which was the greatest Industrial Exhibition held since the first International Exhibition of 1851, the manufactures of Thos. Firth & Sons, Ltd., gained the following highest awards:

Railway, Tramway Plant, etc.	Grand Prize.
Metallurgy, Plant, Processes and Products of Steel and Iron Works	Grand Prize.
Armament and Material of Artillery	Grand Prize.
Naval Engineering	Grand Priz.e



H. M. S. TORPEDO BOAT DESTROYER, "ARAB"

Displacement, 380 tons; I. H. P., 8000: Speed, 32 knots.

(Built by John Brown & Co., Ltd.)

being to minimize stress upon the metal and ensure absolute reliability. The ingots are usually cast in such sizes as to enable two flues to be rolled from each; they are slabbed down in the roughing-mill, and the finishing-rolls form the ribs. Two flue-plates are first placed back to back under a slotting-machine, and shaped at the ends to be flanged; this work is done in pairs, so that the plates will form right and left-handed furnaces respectively.

The plates are then bent in an hydraulic press—one of the special appliances of the firm. This machine consists of a table carrying adjustable ribs, on which the part of the plate to be bent rests, while under it are the three cylinders used in the bending operation. A "fuller," or heavy bar, is rigidly fixed to the framework of the machine, but is removable for the withdrawal of the flue when curved. The flat flue plate is placed between the fuller above and the supporting ribs below, and the latter, rising by the application of the hydraulic power, bend the plate in successive widths to a curve, the radius of which is regulated by the distance apart of the supporting ribs and the duration of the pressing action. As soon as the curvature conforms to the template prepared, the pressure is removed, the plate advanced to bring a new portion under the fuller, and the bending operation completed.

Thus formed to circular shape, the flue is taken to the welding machine. The welding machine is a cleverly designed tool. The anvil is carried on one large bracket, the steam hammer over it on another; and arrangements are provided to enable any length or diameter of flue to be supported immediately on the anvil, the position of which is fixed. Thus, for lateral movement, the platform on which the flue is carried can be traversed by means of gear on the rails placed under the floor level. For vertical movement to suit different diameters of flue, the platform, with rails, etc., can be raised or lowered, and for rotary movement side-bearing wheels are fitted to the movable platform. Both of the arms carry gas furnaces and blowers, coal-gas being preferred because it is considered "easier" on the material. The gas used in this welding-machine is perfectly mixed within the blower, and not at the point of contact as is the usual practice—a difference in method which tends to a more uniform temperature at the point of welding. The hammer is operated by steam, and the work is very quickly and effectually carried out, the flue with its carriage being traversed along immediately under the gas fires and hammer. The flue is next taken to the rounding-machine, also operated by hydraulic power. This tool has a central column, against which the flue is pressed by suitable shaping blocks conforming to the various flue sections. The outside block is given a reciprocating motion by hydraulic cylinders, and the pressing of the flue in this way against the inner column takes out any of the irregularities due to welding, etc. The heat at which this shaping operation takes place is between 1100 deg. and 1200 deg. Fahr. The flanges for securing the flue to the shell-plate and combustion chamber are next formed in hydraulic presses. The flue is then trimmed to the exact dimensions by cold band-saws, with spirally-designed tables which can be moved in any direction, radially, vertically, or horizontally. Slotting machines of special design are used to trim edges which it is not possible to reach with saws. The flue is pickled at a suitable stage in the proceedings, usually before flanging and dressing; and after this operation it is finally annealed in an upright furnace with a movable truck floor. The furnace is air-cooled, so that there is no chance of alteration in form. Thus completed, the flue is passed to the boiler-maker.

Engineering Department.—There are several large machine-shops in the Atlas Works, as a rule, 600 ft. long and 60 ft. wide, with cranes ranging up to 60 tons. Electricity is used for driving all the tools, cranes, etc. The planers, mostly of the screw type, are of great size, some taking jobs 15 ft. wide and 10 ft. high. The lathes, all triple or quadruple-geared, vary in length from 80 ft. down to 50 ft., and in the diameter of headstock from 66 in. to 48 in. centres. Some of the tools recently introduced have exceptionally wide pulleys for high belt-speeds, in order to obtain the necessary power for utilizing to the utmost the special tool-steel made and used by the company for heavy cutting at high speed. The boring-machines are of massive proportions; a 15-in. hole can be bored out of the solid to form a gun tube at a speed of 1 in. per hour. The boring of shafts with holes of 8 in. to 10 in. in diameter is done at the rate of from 3 in. to 5 in. per hour. The other tools of the department include several large slotting-machines, one of them having a stroke of 8 ft., and the necessary drilling and boring-machines. Special loading arrangements are provided for the despatch of productions.

The productions of the works are varied, as the following list shows:—

Armour-plates by the Krupp, Harvey, and other processes.

Marine and other engine crank-shafts.
Shaftings of all kinds.
Turbine drums of the largest dimensions.
Gun and other forgings.
Patent ribbed boiler flues.
Ellis and Eaves induced-draught apparatus.
Robert patent and crucible steel castings of all descriptions for engineering and colliery purposes.
Siemens crucible and all kinds of tool-steel
Atlas self-hard steel for high-speed cutting.
Rolled and forged bars, angles, iron and steel T-rings, etc.
Railway tyres, axles, springs, buffers, etc.
Patent wrought-steel wheels.
Foundry and forged pig iron.

There are extensive laboratories, where all material as it arrives in a raw state, or as it leaves in a complete form, is subject to examination, samples being taken at various stages for chemical analysis and mechanical tests. The chemical laboratory, fitted with the usual appliances, has a staff of fourteen chemists, and a great many of the analyses are by combustion. In the case of many of the productions tests are made at frequent stages; in armour manufacture, for instance, there are three or four chemical analyses and five or six mechanical tests. The measure of chemical hardness of armour is determined from drillings taken from the plate, analysed in layers of ¼ in. by the combustion method.

The mechanical testing department has a 50-ton horizontal hydraulic testing-machine of the Buckton type, as well as an old-fashioned dead-weight testing apparatus, still useful and accurate, although slow. There are two lathes, four planing-machines, able to deal with pieces 3 ft. square by 3 ft. 6 in. high; a rotary-machine for milling, and other appliances, along with a press of 600-lb. pressure for cold bending. All these machines are practically kept working day and night, the aim being that nothing shall be sent from the works except it be thoroughly reliable. For railway work there is the usual drop-test apparatus.

Finally, it may be stated that the works can produce in a year:—

	Tons.
Armour plate	10,000
Forgings	5,000
Flues	2,000
Castings	2,500
Railway Material	20,000
Pig-iron	45,000
All other Manufactures	10,000

Projectiles.—The Norfolk Works of Messrs. Thomas Firth and Sons, Limited, which adjoin Messrs. Brown's establishment at Sheffield, have a productive capacity of 40,000 tons of steel per annum. The manufactures are, for the most part, similar to those of the Atlas Works, consisting of forgings for ordnance work, shafting, etc., steel of every kind (including crucible steel of the highest quality for tools, high-speed steel, files, saws, edge-tools, etc.), and railway materials, with the important addition of projectiles. Nickel, chrome, and other alloy steels for motor-car construction are specialties.

The machine-tools in use are able to deal with the largest forgings that the engineer may require; but as the processes of manufacture are, more or less, the same as those carried out at the Atlas Works, and described in the preceding pages, we do not propose to deal completely with the plant at the Norfolk Works. We make an exception, however, of projectiles, as they are not manufactured at the Atlas Works. Indeed, it was partly the desire to be able to produce this important item in the completion of a warship for fighting service that induced Messrs. John Brown and Co., Limited, to become associated with Messrs. Firth, who have for many years been prominently and favorably known for their shot and shell. Messrs. Firth's connection with this department of industry dates from the days of the old round shot, which they produced from crucible steel, with the assistance of dies. They have since taken a leading part in all the succeeding stages, culminating in the modern capped armour-piercing shell, with its great penetrating power.

The manufacturing departments of the Norfolk Works utilized for the production of projectiles include the steel-producing plant, the forge and press departments, and extensive machine-shops. For the melting of steel for projectiles and similar purposes—tool-steel, etc.—there are 148 crucible-holes, each accommodating two crucible-pots; the capacity is over 5000 tons per annum. All projectiles were at one time made from crucible steel; but in the more modern systems of manufacture, especially where special alloys are utilized, it has been as convenient and efficient to utilize the Siemens-Martin open-hearth furnace at the works for this as for other purposes. There are four of these in the Norfolk Works, one of them having a capacity of 45 tons, two of 25 tons, and one of 10 tons. Ingots from the steel-melting department are sent to the forge, where they are worked into bars under hammers ranging from 12 to 30 tons in power.

The process of manufacture differs according to the final form which the projectile is to take. When it is intended to make armour-piercing shot, the blanks—as the embryo projectiles are called—are bored and turned, then hardened and tempered, gas checks or copper bands being subsequently fitted on. Blanks to be manufactured into armour-piercing shell are sent to the punching and drawing-shop, where they are dealt with by a series of hydraulic presses, varying from 500 tons to 100 tons in power. The first process consists in the formation of a cup at the base of the pointed blank, to facilitate the subsequent drawing down into a hollow cylindrical form. The press for the latter purpose is of the horizontal double-headed type, of 300 tons power, having a cylinder 16 in. in diameter and a stroke of 72 in. The shell cylinder is next machined, hardened, examined and tested. An important part of the work is done in the forge, which is fitted with a modern 12-ton hammer, and many other hammers.

For the machining of the projectiles to the correct finished form there are five machine-shops, some of them arranged for doing special work upon all sizes of shot, in order to concentrate as far as possible the experience gained. In these several machine-shops there are 146 machine-tools, many of them of special type. The tool for forming the ogival, or pointed nose, is a particular pointing lathe; the cutting tool accommodating itself to the lessening diameter of the nose by means of a radius bar, secured at one end to a fixture on the frame, and at the other end operating a cross-slide, which again actuates the cutting-tool. The groove for the copper band is cut in an ordinary lathe, with ribs in wavy lines, so as to prevent the band from rotating independently of the projectile in its passage through the rifled bore of the gun. This band is pressed into the groove on the projectile on a special hydraulic press of the horizontal type, with a 15-in. cylinder. For this special duty there is mounted on the cross-head of the ram a die representing half the circumference of the ring, while the head of the press carries a similar die corresponding to the other half; the projectile, with its ring, having been placed in position, the hydraulic pressure exerted through the dies, forces the ring at all points of contact into the groove prepared for it.

The projectile after being hardened is finished to its ultimate true diameter by means of grinding-machines, of which there is a large collection, specially devised for the varied work of the company. These machines are fitted with horizontal spindles for holding the projectile in front of the grinder. The spindle is provided with a hand traversing-slide, so that the machinist has complete control over the operation, and can ensure that the grinding is done to suit the gauge. All so-called solid shot have a small hole bored down the centre, and even shell drawn hollow in the press are sometimes turned internally. This work is done in boring-mills of the horizontal type. The shells are steam heated internally prior to the process of lacquering, and the time and percussion-fuse blocks are screwed at the base in the ordinary way.

Messrs. Firth have also made a speciality of the steel castings for turbine machinery.

The Clydebank Shipyard.—Since it was constructed in 1873, this establishment, situated on the Clyde, near Glasgow, has added to the naval and merchant fleets of several nations a long line of vessels of the highest standard and success. Beginning with the smallest class, the sloop of war, advance has been made step by step to the largest battleships and cruisers in the world; with the result that the managers and staff have accumulated an experience which enables them to undertake naval work with the assurance of absolute success, and at the same time inspires the naval authorities of Britain and foreign countries with confidence in ordering such vessels. The firm also possesses an experimental tank in which to conduct ship-model tests according to the system first introduced by Dr. Froude, by which means it is easy to determine the design that will give the greatest propulsive efficiency, and ensure the highest speed for a given weight and power. By the aid of the special plant in use, the work of ship construction can be effected expeditiously, efficiently, and cheaply.

If further evidence than the success of the Lusitania were required to establish the high place of the works among shipbuilding concerns, there is the fact that the firm are now completing the construction of the 25-knot armoured cruiser Inflexible, than which there is no more powerful cruiser afloat. They have built or engined warships totalling 180,600 tons displacement and 451,830 horse-power. Their enterprise, too, is reflected in the fact that they have completed, or have in hand,turbine machinery totalling 213,000 horse-power—a greater total than can be credited to any firm in the world. Many of the fast Channel steamers have been built at Clydebank, and the record of Atlantic work is almost unique. Mention may be made of the Saxonia, Caronia, and Carmania as well as the Lusitania. The Table on this page gives the names of typical warships built during the past few years. In addition, machinery has been constructed for the battleship Africa the armoured cruiser Essex, and the fast scout-cruiser Boadicea.

TABLE IX.—SOME TYPICAL WARSHIPS BUILT AT CLYDEBANK WORKS.

——	Length.	Displacement.	I.H.-P.	Speed.	GUNS.
Battleships.	ft.	tons		knots	
H.I.J.M.S. Asahi.....	400½	15,200	15,000	18	Four 12-in., fourteen 6-in., twenty 12-pr., eight 3-pr., four 2½ pr.
H.M.S. Hindustan....	425	16,350	18,521	19	Four 12-in., four 9-2 in., ten 6-in., twenty-eight smal.
H.M.S. Jupiter.......	390	14,900	12,000	17.5	Four 12-in., twelve 6-in., eighteen 12-pr., twelve 3-pr.
Armoured Cruisers.					
H.M.S. Inflexible.....	530	17,250	—	—	—
H.M.S. Leviathan....	500	14,100	31,203	23.28	Two 9.2-in., sixteen 6-in., fourteen 12-pr., three 3-pr.
H.M.S. Antrim.......	450	10,850	21,604	23.02	Four 7.5-in., six 6-in., two 12-pr., twenty-two 3-pr.
H.M.S. Sutlej.......	440	12,000	21,261	21.77	Two 9.2-in., twelve 6-in., fourteen 12-pr., three 3-pr.
H.M.S. Bacchante....	440	12,000	21,520	21.75	Two 9.2-in., twelve 6-in., fourteen 12-pr., three 3-pr.
Protected Cruisers.					
H.M.S. Terrible......	500	14,200	25,000	22.4	Two 9.2-in., sixteen 6-in., fourteen 12-pr , eight 3-pr., nine maxims, two 12-pr. (landing).
H.M.S. Ariadne......	435	11,000	18,000	20.75	Sixteen 6-in., fourteen 12-pr., three 3-pr., two maxims.
H.M.S. Europa.......	435	11,000	16,500	20.5	Sixteen 6-in., fourteen 12-pr., four 3-pr., two maxims.
Torpedo-Boat Destroyer.					
H.M.S. Arab.........	218	470	6,000	31	One 12 pr., five 6-pr.

In describing the works, it may be more interesting to review the departments and plant in the order of their use and importance in the building of the ship, rather than to adopt an itinerary method; and it may be said at the outset that the works have a frontage to the River Clyde of 3200 ft., and that the building berths have a length varying from 450 ft. to over 800 ft.

The Experimental Tank.—The department which first influences the efficiency of the work is the experimental tank. The waterway extends for 445 ft., of which 400 ft. is deep, varying from 9 ft. at the north end to 10 ft. at the south end. This fall of 1 ft. is gradual, and is for the purpose of drainage when emptying. The breadth is uniformly 20 ft. At the north end there are wet and dry docks; of the wet docks, one is for storing models, and the other, placed between the dry docks, is used for loading and trimming purposes. The towing-truck can be run over the central dry dock, and the dynamometer and propeller gears examined from it; the latter must be raised to clear the dock-sill. Ballast bags and some spare parts are stored in both dry docks. At the south end there is a sloping beach, 25 ft. long, to assist in breaking up the waves formed by the passage of a model through the water. A recess, however, is left up the middle, to prevent screws or models being run aground. The basin, which is rectangular in cross-section, is formed of concrete, with expanded metal and puddled clay backing.

The building is of brick, and besides the tank proper, provides accommodation for a large drawing-office, a tracer's room, and superintendent's office, with the necessary fireproof record-rooms, etc. Adjoining the tank and in communication with it is a complete new department for model-makers. These assist in the work of the tank by making cores for the casting of paraffin wax models, and in fairing down the latter when they come from the shaping machine.

As it is very necessary to keep the temperature of the tank at or about a uniform degree, winter and summer, a complete system of hot-water piping is installed, and the heat is controlled at the calorifiers, of which there are two at the north end and one at the south end of the building, in rooms for the purpose. The offices and shops are heated on the same system with pipes and radiators.

Light is admitted to the tank by windows on both sides, and from the roof, which is in great part of glass; while a complete system of electric lighting is installed throughout the buildings.

The models used are generally about 15 ft. long, although exception is made in the case of high-speed torpedo-boat destroyers, when the length is about 11 ft. The model of the Lusitania was made to a scale of 1-48th, being 15.83 ft. in length; the speed of this model corresponding to 25 knots was 365 ft. per minute, or about 3¾ knots; but models are always run over a range of speeds lower and higher than that proportionate to the trial speed of the ship; and they are run at these speeds in three or five conditions of displacement, so that complete information relating to displacement, speed, and resistance is obtained for each model.

The melting-boxes are supported on the wall. Paraffin wax with a small addition of beeswax is melted in the upper box, and strained into the lower or storage one; from there it is run off through pipes into a mould in the clay, or casting-box, the mould being carefully prepared to the shape required for the model, with a margin allowed, and having a core of lath and canvas to regulate the thickness.

When the casting has sufficiently set, it is levelled on the top and carried to the cutting or shaping-machine. As part of the cutting-machine there is a wheeled carriage on planed rails, in which the casting is placed, secured at the middle line, keel upwards, while in front there is a table on which a half-breadth plan of the ship is pinned. Two cutters, which, when at work, rotate at about 2500 revolutions per minute, are adjustable about the centre line of the carriage, and in a vertical direction.

This is, as yet, the only electrically-driven tank carriage in this country, motive power in the other cases being supplied by a rope driven from a winding engine. Current is supplied from one of the yard power-stations, but as it would be too irregular if applied direct, it is passed through a motor generator into accumulators, from which it is again discharged through the motor generator at a suitable and regular voltage, and delivered to the tank. The method of measuring the resistance of a model is that used by the late Dr. Froude, of recording graphically the extension of an accurately-made spiral spring. The extension is magnified twelve times, and each spring is standardized in position before use; but full details will be found in our article, to which we have already referred.

The Hull Constructional Plant.—The work of hull construction begins in the case of all ships in the moulding-loft, which is 250 ft. long and 55 ft. wide; the roof is of light steel principals, with corrugated iron on the purlins, and the sides are entirely of glazing. There are frame-bending shops in the western and eastern yards, each with several angle-iron furnaces, 61 ft. long, and a large floor area of cast-iron blocks for setting the frames, as well as screeve boards for laying them out. There are alongside, also under cover, the usual equipment of punches and shears, with a special hydraulic machine for cutting off the ends of channel bars, and a machine for planing both edges of angles at one operation. A specially noteworthy machine is that for setting the flanges of angle-iron frames to the required bevel. The tools in the platers' shed, as a rule, are designed to work plates up to 35 ft. long and 7 ft. wide. There are about thirty punching and shearing machines. Of special interest are two double punching machines, of the cam and lever pattern, with twin punches at each side. There are two hydraulic manhole punches, capable of working holes of 36 in. by 22 in., while two other machines of a kindred nature for cutting elliptical and circular manholes are worked with automatic feed. Irregularities in the plates, angles, and channel framing of warships, due to splinter gratings in the air-hatches of protective decks and to other causes, have made necessary the use of band saws for cutting such sections, instead of the ordinary hydraulic shears; and two powerful saws of this type are in constant use at Clydebank, in addition to the ordinary circular saws, of which there are four. There is an immense hydraulic flanging machine for setting plates for the keel and garboard strakes, as well as for stiffening flanges in bulkheads. It is capable of dealing with plates of any length, being open-ended, but the machine itself is 25 ft. long.

Wood-working Department.—As can readily be imagined, in an establishment which sends out a large number of high-speed passenger steamers and yachts, the wood-working department is very extensive, occupying about 10 acres of ground, two-thirds of which is covered by drying sheds. The timber for the joiners' shop is accommodated in a building measuring about 360 ft. long by 125 ft. broad, and having 112 portable racks and four patent electrically-driven radial cross-cut and ripping saws, for cutting timber to the exact size required by the joiners. The store for deck planks is a duplicate of the joiner's shed, the timber being delivered automatically from the planing-machines to any part for stacking. There is ample accommodation, entirely under cover, for storing and seasoning all wood required for the decks of twelve Atlantic liners.

The saw-mill is new, and is situated at the extreme west end of the yard. It is controlled in every part by four overhead travelling cranes, which lift the logs direct from the river, and store them or deliver them to the machines as required. The log department is fitted with machinery of a combined cutting capacity of over 500 logs per week. In the re-conversion and re-sawing of the wood the principal machines used are one large deck planer, one lining and flooring machine, one American planer, one moulding machine, one deal frame, one improved Casson's bench, two small saw benches, two large travelling circular benches, one lightning planer, two pendulum cross-cut saws. In the saw-room there are seven automatic saw-sharpening machines for band-saws, one automatic blade-grinder, one punching machine, and two hand-sharpening machines. The wood stove is controlled by a patent thermo tank, by which the temperature can be regulated at will. The entire installation is supplied with steam by two Lancashire boilers, automatically fired by Henderson's patent stoker for sawdust and chips. The buildings, machinery arrangements, etc., were designed by the company's staff.

The joiners, cabinet-makers, and polishers are accommodated in a two-storey brick building, 200 ft. long and 150 ft. broad. The collection of wood-working tools is complete, and is representative of the best British and American practice. It includes sand-papering machines, dove-tailing machines, blind-slotting machines, and special tools for cutting spiral or fluted grooves of balusters, sheer-legs, etc., with the usual planing and moulding machines. The shavings, etc., and sawdust are carried off by a pneumatic conveyor direct into the furnaces of the boilers in an adjacent power-station.

The Fitting-out Basin.—It may not be uninteresting to introduce here a reference to the dock or fitting-out basin. It occupies the central part of the water frontage, and extends for 750 ft. from the river, while the width of the dock is 320 ft. from cope to cope. In addition to the 120-ton sheer-legs, which have done service for so many years, and several 20-ton and 10-ton travelling-cranes, the firm have recently erected two cranes of 150-ton capacity—one on each side of their fitting-out basin—so that they may deal with the heaviest loads for two ships simultaneously without moving the ships to and from the crane berth, as is done in other works, at considerable expense in time and money. One of the new cranes is of the derrick type. The foundations are steel cylinders sunk to a great depth; and these, together with the structural portion of the crane, were built by, and from designs of, Sir William Arrol and Company, Limited. This crane is placed on the east side of the dock, and has been used in the fitting-out of the Cunard liner Lusitania. The other crane is of the hammer or Titan type, and is placed on the west side of the dock. It consists of a square tower, 125 ft. in height, carrying a horizontal jib of a total length of 240 ft.; the long arm being 150 ft. in length. The jib is supported upon a ring of live rollers, and is capable of making a complete revolution in either direction, with lifting and racking motions. This is the largest crane of its type yet completed.

The Engineering Department: Turbine-making Machinery.—We now turn to the engineering department of the works, which is compactly arranged near to the head of the fitting-out basin. Some idea of the capacity is provided by the fact that for several years the average output has been over 60,000 indicated horse power per annum, the number of men engaged in this department alone being from 2700 to 3000.

First mention must be made of the lathe for turning large turbine rotors. This tool is 82 in. in height of centres, 50 ft. long between centres, and 11 ft. 10 in. wide across the double-slide bed. The width across the base of the loose headstock is 8 ft. 9 in., and across that of the fast headstock 9 ft. 1 in., rendering these parts sufficiently rigid to prevent any irregularity of the rotor before turning affecting the perfect roundness of the finished work. The overall length of the lathe is 72 ft. 6 in., and the gross weight 163 tons. There is also a large and very powerful horizontal boring-mill, specially designed for boring turbine casings. The overall length is 76 ft., and the total weight 95 tons.

Included amongst other heavier tools are two vertical milling machines, the cutters used varying in diameter up to 18 in.; the cross-feed is 6 ft., and the transverse-feed is 2 ft. 1 in., the movable tables being 4 ft. in diameter. There is a treble-geared miller, capable of milling a surface 10 ft. by 4 ft. 7 in. by 18 in. deep, the table being fitted with a quick-return power motion. Opposite this latter tool is a triple-geared lathe, 20 ft. between centres, with an independent motion by screw; the headstock is 33 in., and is provided with rack motion for quick hand traverse; the saddles are arranged so that they will pass alongside the shifting-head, in order that an extra large job may be faced up. The face-plate is 5 ft. 10 in. in diameter, and can swing 48 in. and 54 in. clear of the back and front saddles respectively. There are two other powerful treble-geared lathes, mounted on one bed, so that a 33-ft. length of shafting can be driven by both heads. Close by is a large radial drill, having a spindle 5 in. in diameter, and fitted with a screw and hand gear; the jib has a 3-ft. vertical travel, the drilling spindle traverses 8 ft., and the vertical feed is 2 ft. 6 in. There are five slotting machines, the larger having a 20-in. stroke, with compound and rotary table, and another with a 16-in. stroke, with a quick-return motion, admitting articles up to 5 ft. 4 in. in diameter. Adjoining is a large treble-geared face-place lathe, the plate measuring 11 ft. in diameter. There are together a set of three combined planing and slotting machines, with quick-return motions. One can deal with an area of 21 ft. long by 17½ ft. high, and is arranged to take a cut of cast iron 1 in. deep at a speed of about 15 ft. per minute; a second can slot and plane over a surface of 20 ft. 6 in. long by 14 ft. high; the third machine can take a job 15 ft. long by 12 ft. high.

At the north end of the bay there are grouped a set of four horizontal universal, boring, drilling, and tapping machines, and two of these can operate over a continuous vertical surface of about 40 ft. by 10½ ft. These powerful machines have bored cylinders of exceptional diameter, tapping and studding their flanges at a single setting. One of the 5-in. spindles of these machines is fitted with an interchanging wheel arrangement for combing or cutting internal screws of large diameter, by means of a chasing tool held in a small slide on the end of a spindle. Opposite ,these machines are two powerful treble-geared shafting lathes, whose beds are continuous, and with feeds up to 5 in. per minute. They are 21-in. centres, and each is fitted with two strong duplex sliding saddles, each having front and back duplex rests. The front rests are arranged for tapered work.

It is not possible, however, to give anything like a complete idea of the equipment of the engine works, which also include a well-equipped brass foundry, brass-finishing shop, galvanizing shop, sheet-iron department, copper smithy, as well as the boiler works, in all of which electricity is adopted, the modern system of driving the dynamo by producer gas-engines being adopted.

The brass foundry is considered one of the largest and finest in the country, having ample plant and every facility for carrying out all classes of work. The equipment includes air furnaces ranging from 16 tons to 5 tons, drying stoves 20 ft. long by 20 ft. wide, heavy overhead travelling cranes, and hydraulic jib cranes, 2½ cwt. air furnaces and 32 crucible furnaces, hydraulic and hand-moulding machines, besides rumblers, and circular and band-saws. In order to render the foundry self-contained, there is a 3-ton cupola for making the required moulding boxes and plates, core bars and core irons, and the other cast-iron necessary for the department. Brass castings up to 25 tons have been dealt with. Adjoining the foundry are the requisite stores for metal, sand, and furnace coal, etc., and close by is the hydraulic house, in which is a 60 horse-power and 100 horse-power gas-engine, driving separate three-throw pumps, and supplying two accumulators, 15 in. and 21 in. in diameter respectively, with a stroke of 14 ft.

The brass-finishing shop forms the upper floor of a two-storey building, the ground floor of which is devoted to water-tube boiler work. In this shop are lathes, milling machines, and screwing and grinding machines; a most interesting feature being a number of small English and American machines of ingenious design, for the machining of duplicate parts. In both of these shops small longitudinal and transverse overhead travellers are arranged, as well as a powerful hydraulic hoist for the transport of material to and from the brass-finishing department.

The main boiler works are divided into four bays, being 410 ft. long, with a total width of 190 ft. In the two largest bays the cylindrical boilers are constructed, and there are several very powerful tools, notably plate-edge planers for dealing with plates 38 ft. long, and a vertical machine for cutting ovals for manholes on cylindrical boilers. In the main bay there is a plate furnace 20 ft. long by 10 ft. wide, with a powerful steam-hammer, the whole set being commanded by an hydraulic crane. There are several powerful flanging machines, multiple boring and drilling machines, vertical cold-plate rolls, taking 12-ft. plates, and many punching, shearing, drilling, and tapping machines, besides several large riveting machines. The third bay is largely utilized for the construction and erection of water-tube boilers.

The electric generating plant for shipbuilding and engineering departments has a total capacity of 3000 kilowatts, and the consumption of current for lighting and power reaches about 50,000 units per week: a fact which suggests the extent of the application.

There are also hydraulic and compressed-air plants.

John Brown & Co., Ltd., and Thos. Firth & Sons,. Ltd., have a branch office in Shanghai under the capable direction of H. P. King, M.I.M.E., located on Kiangse Road. The increasing demand for high grade tool steel for the many arsenals, dockyards, machine shops, etc., and for projectiles, has necessitated the establishment of a separate Far Eastern Branch to handle this important business.

The first-class cruiser *Inflexible* has just been completed at the Clydebank Yard and handed over to the British Government. In the new Admiralty programme, Messrs. John Brown & Company have secured orders for one cruiser, three torpedo-boat destroyers, and the machinery for one of the battleships being laid down in a Government yard.

Messrs. John Brown & Company, Limited, are now allied with the well-known Belfast shipbuilders, Messrs. Harland & Wolff, who have now under construction two steamers for the Atlantic trade, each of about 43,000 tons.

To extend their business in the Far East the Company established a Branch Office for China which is located at 24A Kiangse Road, Shanghai.

HOW JAPAN USES HER FORESTS*

Japan's system of forestry is probably the oldest in the world. Long before France and Germany took precautions to protect their forests—in fact before these countries existed, Japan had a well managed system of forestry. Royal commands, ordering trees to be planted along the headwaters of rivers that floods might be prevented, were issued in Japan fifteen hundred years ago. Trees were also planted to prevent landslides, and the princes of Japan kept records of plantings and encouraged the production of the more valuable trees.

From these early times to the present day, the people of Japan have made the greatest use of the products of their forests. Their skill in finishing and constructing articles from the various kinds of woods, has become famous. In fact, the word "japan" has come to mean "to varnish" and is no longer spelled with a capital in that connection.

The policy of the Japanese is such that the forests of the country have not only been kept from deterioration, but become more valuable from year to year. This has been true notwithstanding the increase in population which has made land more valuable for other purposes besides the growing of forests.

The "free use" privilege, in the early days of Japanese history, was restricted. By "free use" is meant permission granted to cut whatever trees and as many as wanted, for personal use, in the forest. When the ancient Government of the Barons was overthrown in the middle of the last century, the forest policy was changed, and free use was allowed. This resulted in an immediate drain on all forests near large centers of commerce. Later, the old policy was restored and the forests are again properly administered, and are one of Japan's crowning glories and a substantial source of revenue to the State.

Two kinds of forests are specified in the forest laws of Japan. The "reserve forest" is kept as a guard and protection against floods and other menaces to life and prosperity. The "available forest" is made to yield the greatest source of income possible. The State owns a little over one half of the total area of the wooded land in Japan. From the 33,000,000 acres included in its portion, the State makes a net revenue of sixteen million pesos a year.

As in other branches, so in forestry, Japan is not averse to learning all that is to be learned from other countries. Germany, offering the most complete and efficient service, became, for some time, the teacher of young Japanese who went there to investigate the workings of the German system. Today, there are sixty-two Japanese institutions that instruct in forestry where thirty years ago there was none.

The Japanese have any number of uses to which they put the oak tree. From it, railway sleepers are manufactured; charcoal is made; from its bark tanning material is taken. The oak, the curly ash, and the bird's eye maple are all particularly handsome when made up into furniture. The timber of these trees is exported to China, Australia, Mexico, and the United States. Bamboo is used in all manner of ways, as in the Philippines.

Mulberry, lacquer, and vegetable-wax trees grow on cultivated land and furnish a substantial revenue for their owners.

One use to which trees are put in Japan that is unique and interesting, is their use in landscape gardening. Japan is famous the world over for the artistic arrangements of trees and shrubs that make the whole country resemble a well cared for park. Pines, maples, oaks, and chestnuts are used to work out elaborate designs. Cherry trees and flowering magnolias are extensively used; so also are the dwarfed pine trees that grow in all manner of shapes and live to be centuries old.

Many of the varieties of trees found in Japan are found in the Philippines. There are also many valuable trees in these islands unknown to Japan. Millions of acres of forest in the Philippines, representing incalculable wealth and material comforts for the Filipinos, lie practically unused. The opportunities for bringing this country a substantial yearly income from its forests are here. All the many aids to comfort that the Japanese derives from his forests can be had by the Filipinos. Landscape gardening could be made quite as effective in Manila as in Tokyo. The raw material for producing costly carvings and other works of art is present in abundance and the Filipino possesses much of the peculiar skill and artistic insight necessary for such work. What is lacking in the Philippines is a realization of opportunities offered. When the Filipino has learned to appreciate and care for the Philippine forests as the Japanese cares for his, he will have taken a long step towards prosperity and culture.

BANKING IN MONGOLIA

There are rumors that the Urga Branch of the Russo-Chinese Bank is to be closed on the Russian New Year, writes the correspondent of the *China Critic* at Urga. If these rumors be true, Mongolia soon will have no European banking institutions; the only Bank, run more or less on European lines, being the Taching Government Bank.

The Uliassutai Branch of the Russo-Chinese Bank is already closed, and the Kalgan Branch will shut their doors on the Chinese New Year (22nd inst.).

It is true that a European Bank, wishing to transact its business in Mongolia in the same way as it is done in China or elsewhere, cannot hope to be very successful; as, in order to make its business profitable it ought to act as the others do, i. e. buy and sell skins, furs, wool, etc. The general expenses are necessarily great, and, as the branches in Mongolia cannot have their own capital (deposits are unknown in this country) and have to borrow it from their Head-Office at a higher rate of interest than the usual deposit rate, the profits, if any, are so small that it is really not worth while to keep branches in Mongolia, and thus set aside a considerable amount of money necessary for their working, which money might be more profitably employed elsewhere.

General Lectures on Electrical Engineering, by Charles Proteus Steinmetz, A.M., Ph.D., consulting engineer of the General Electric Company, professor of electrical engineering, Union University, and past president A. I. E. E., has reached our desk from the presses of Messrs. Robson & Adee, publishers, Schenectady, N. Y. It is a volume containing a series of lectures by Professor Steinmetz, edited by Joseph Le Roy Hayden, and is a valuable addition to electrical literature. The lectures are general in their nature and have to do with problems of generation, control, transmission, distribution, and utilization of electric energy. Price, $2.00 net.

Modern Steam Engineering in Theory and Practice, by Gardner D. Hiscox, M.E., with *Chapters on Electrical Engineering*, by Newton Harrison, E.E., has been issued from the presses of Messrs. Norman W. Henley & Co., New York. It is a practical work for steam users, electricians, firemen, and engineers and brings up to date all available information on economy in the uses of steam and covering all its many properties and use for power. The volume is illustrated with 400 engravings and contains forty tables together with a compilation of questions likely to confront the student before examining boards. Price, $3.00 net.

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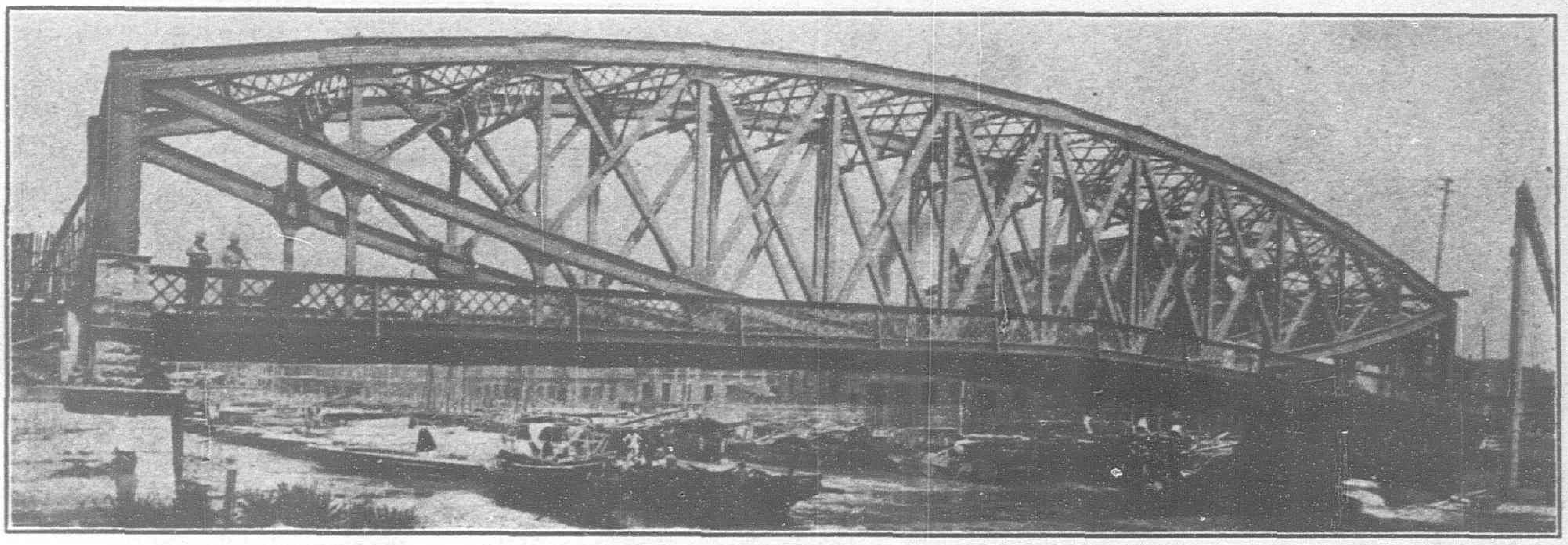
*Bulletin Philippine Bureau of Forestry.

The Garden and Chekiang Road Bridges, Shanghai

The Garden Bridge across Soochow Creek, recently constructed by Messrs. Howarth, Erskine, Ltd., Singapore, is one of the most important public improvements to the credit of Shanghai during recent years. The first pile in the cofferdam was driven in August 1906 and the bridge opened to traffic in January 1908.



SIDE VIEW OF THE CHEKIANG ROAD BRIDGE, SHANGHAI, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

The bridge has two equal spans of 171 feet 2.25 inches made up of eleven panels and giving two clear waterways of 167 feet. The main girders are riveted modified Pratt trusses, 30 feet deep at center and spaced 40 feet apart, the footways being on cantilevers. The total width between parapets is 60 feet, the carriageway 36 feet 9 inches wide between kerbs, the footways 9 feet 6 inches each clear and the headway under the portals 17 feet 6 inches. The gradient of the approaches was fixed at 1 to 30, the gradient at the North span, 1 to 38, and at the South span 1 to 57. The clear headway above water for boat traffic varies from 6 feet 6 inches to 11 feet under the North span and from 8 feet to 11 feet under the South span as stipulated by the harbor authorities.

The abutments and pier are built of Portland cement concrete and Soochow granite quoins and cutwaters with steel T bars for reinforcing the pier and abutments.

This data is taken from the report of Charles Mayne, M.Inst.C.E., Municipal Engineer, under date of January 20, 1907, in which he gives a further résumé of the history of bridging the Soochow Creek and includes his report on this important work at that stage. He says:

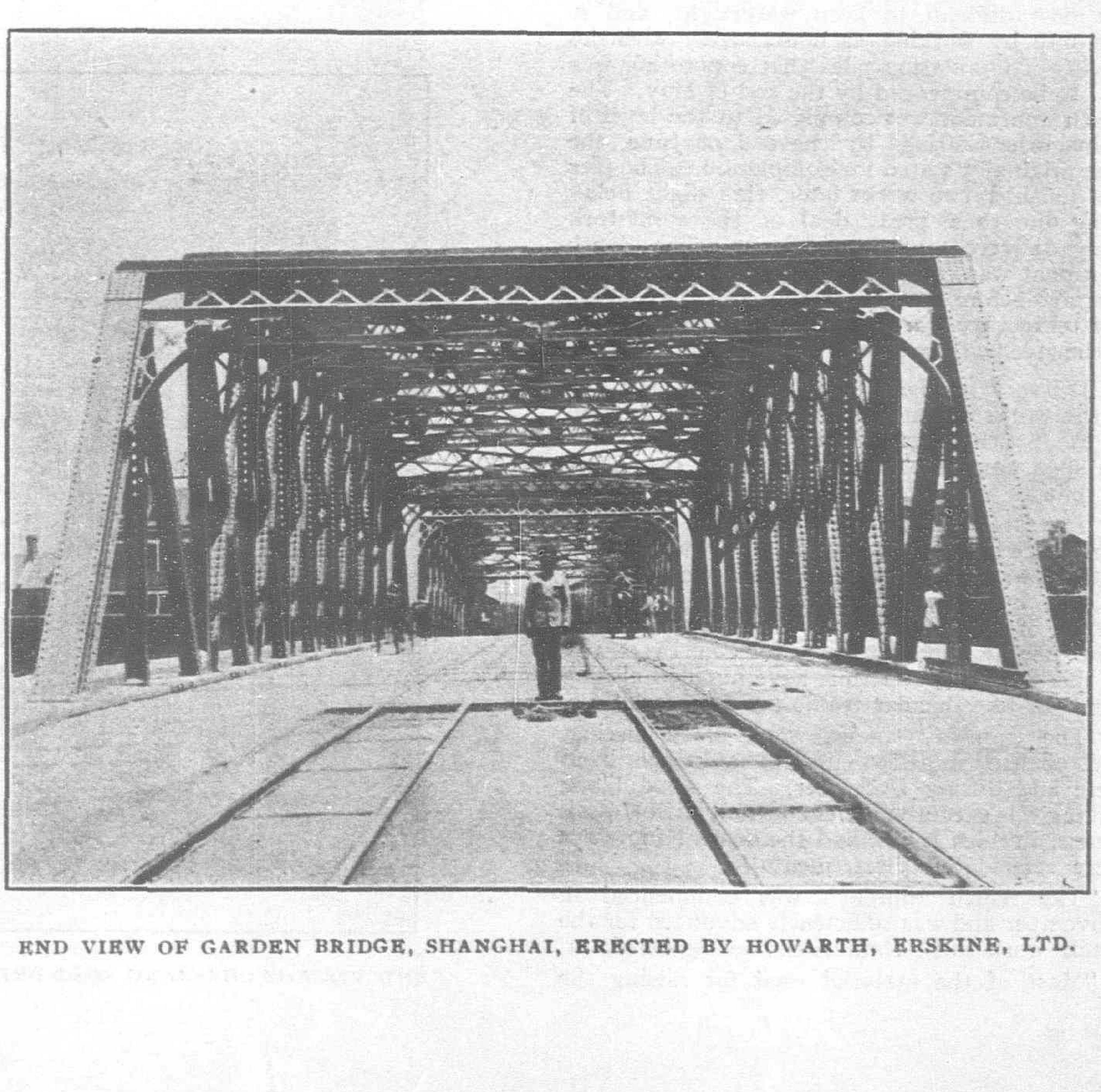
"After innumerable delays the erection of the Garden and Chekiang Road Bridges has been commenced. Over 30 years have elapsed since the accident to the iron bridge over the Soochow Creek at the Garden, and in the interval the old wooden structure—raised, widened and renewed from time to time—has carried the ever increasing traffic effectually, if not altogether smoothly. The history of the bridge is closely connected with that of old Shanghai, and its demolition will be regretted by many.

"The first bridge across the Soochow Creek near its mouth was erected by the Soochow Creek Bridge Company in 1856-7, between the old Consulate entrance and the present Woosung Road. It was a wooden drawbridge and tolls were levied. In 1871 an iron bridge with screw pile piers, and having one draw span, was built near the site of the present bridge, but an accident happening on the eve of completion it was finally removed. The present Garden Bridge was built by Messrs. Farnham & Co. in 1873.

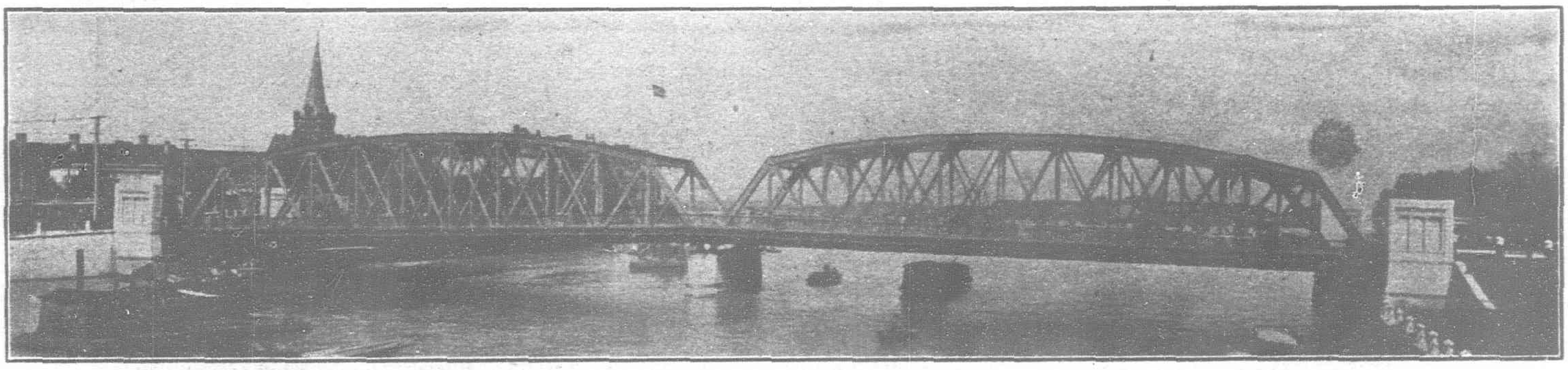
"The design of the bridge now in course of construction has been arrived at after long and careful consideration. A considerable number of alternative designs were submitted to the Council by the writer, including one span, two spans, three spans, one span over fairway with short approach spans on the Hongkew side, etc. Owing to the unstable nature of the soil it was considered advisable that no horizontal thrust should come upon the abutments, arched structures were therefore precluded, though, from an aesthetic point of view, and also for other reasons, an arched type would have been desirable. It was originally intended to allow tenderers to submit their own plans, subject to certain limitations, and plans and specifications were drawn up accordingly, but this idea was abandoned at the last moment, as there was always a considerable doubt as to the lines on which the Soochow Creek would ultimately be conserved, and in the absence of definite information it was felt that money might be expended needlessly. Under the circumstances it was decided to await the arrival in Shanghai of the Engineer-in-Chief of the recently constituted Conservancy Board (Mr. J. de Rijke) in order to confer with him on the subject. The matter was only settled in March last, and it was finally decided that a two-span bridge would best meet the various requirements. In order to save time, which was very limited, it was arranged that drawings should be at once prepared in this office, and that the construction of abutments and pier should be proceeded with departmentally directly the drawings were completed and while tenders for the steelwork were being advertised for. It was also decided, in view of the difficulties likely to be encountered in connection with the work, that the services of a Consulting Engineer should be retained, and Mr. A. H. Collinson, M.Inst.C.E., was offered and accepted the appointment."

In his recent report for the year 1907 announcing the completion of the Garden Bridge, Mr. Mayne says:

"The most important public work yet carried out by the Council—the erection of the Garden



END VIEW OF GARDEN BRIDGE, SHANGHAI, ERECTED BY HOWARTH, ERSKINE, LTD.



SIDE VIEW OF GARDEN BRIDGE, SHANGHAI, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

Bridge—has been completed during the year. The first pile in the cofferdams was driven on August 4, 1906, and the bridge was opened to traffic on January 20, 1908—less than 18 months, including the extensive raising of the approaches. Taking into consideration the miscellaneous nature of the plant, the delay caused by having to blast away the old foundations, the treacherous nature of the soil, and the difficulties in connection with native labor, the time compares favorably with other constructional work executed in Shanghai. The carrying out of the substructure departmentally has proved a somewhat troublesome undertaking, and although no actual breakdowns occurred, the putting in of the foundations gave rise to considerable anxiety. The nature of the site, difference in levels, and the conditions imposed as to headway, width of spans, etc., precluded an ornamental structure, but the bridge has been designed as a first-class highway bridge, and future as well as present traffic requirements have been taken into consideration. The Contractors for the steelwork for this and the Chekiang Road Bridge were Messrs. Howarth Erskine, of Singapore, who carried out the erection with commendable celerity. The Cleveland Bridge Company, of Darlington, England, manufactured the steel."

"After a considerable amount of trouble with the cofferdams the concreting of the North abutment was commenced in March and of the pier in April. The South cofferdam was the most difficult to keep watertight, and it was only by working 24 hours a day with the driving of foundation piles that concreting was able to be commenced by the end of May. The North abutment was completed to the level of main girder-bearings by the end of June, the time originally stated for completion. The pier was finished two weeks later, this slight delay being due to a great deal of the stonework being delivered inaccurately cut. The South abutment was completed to the level of girder-bearings before the end of July and the staging and temporary work necessary for the erection of the steelwork was then put in hand.

"Delivery of the North span upon the site of the works commenced on September 28, and of the South span on October 21. That the two spans were erected and rivetted by December 15 reflects great credit on the contractors.

"The raising of the North approach roads was commenced on September 15 and was finished so far as was then possible by the end of October. It was unfortunate that owing to the non-arrival of special work the Tramway Company were unable to lay their tracks in Broadway at this juncture, and thus have avoided closing the road to vehicular traffic for a second time.

"The tramway tracks, wood block paving, and cement footways upon the bridge itself were laid during December. The wood block paving was executed under contract with Messrs. Bruce, Peebles & Co., and the cement footways were carried out departmentally.

"The South approach was commenced in November and was sufficiently advanced for the track work to be commenced on December 21.

"Most of the material used for raising the approaches has been quarry refuse from the Council's Quarry at Pingchiao. Its removal has been the means of providing additional ground for stacking chips, decomposed sand, etc., at the Quarry, and it has at the same time proved an excellent and solid material for filling. The North approaches will be completed by the construction of a concrete bunding between the north-west corner of the bridge and Woosung Road. This work is in hand, but, owing to the holidays at Chinese New Year, is not expected to be finished before the middle of March.

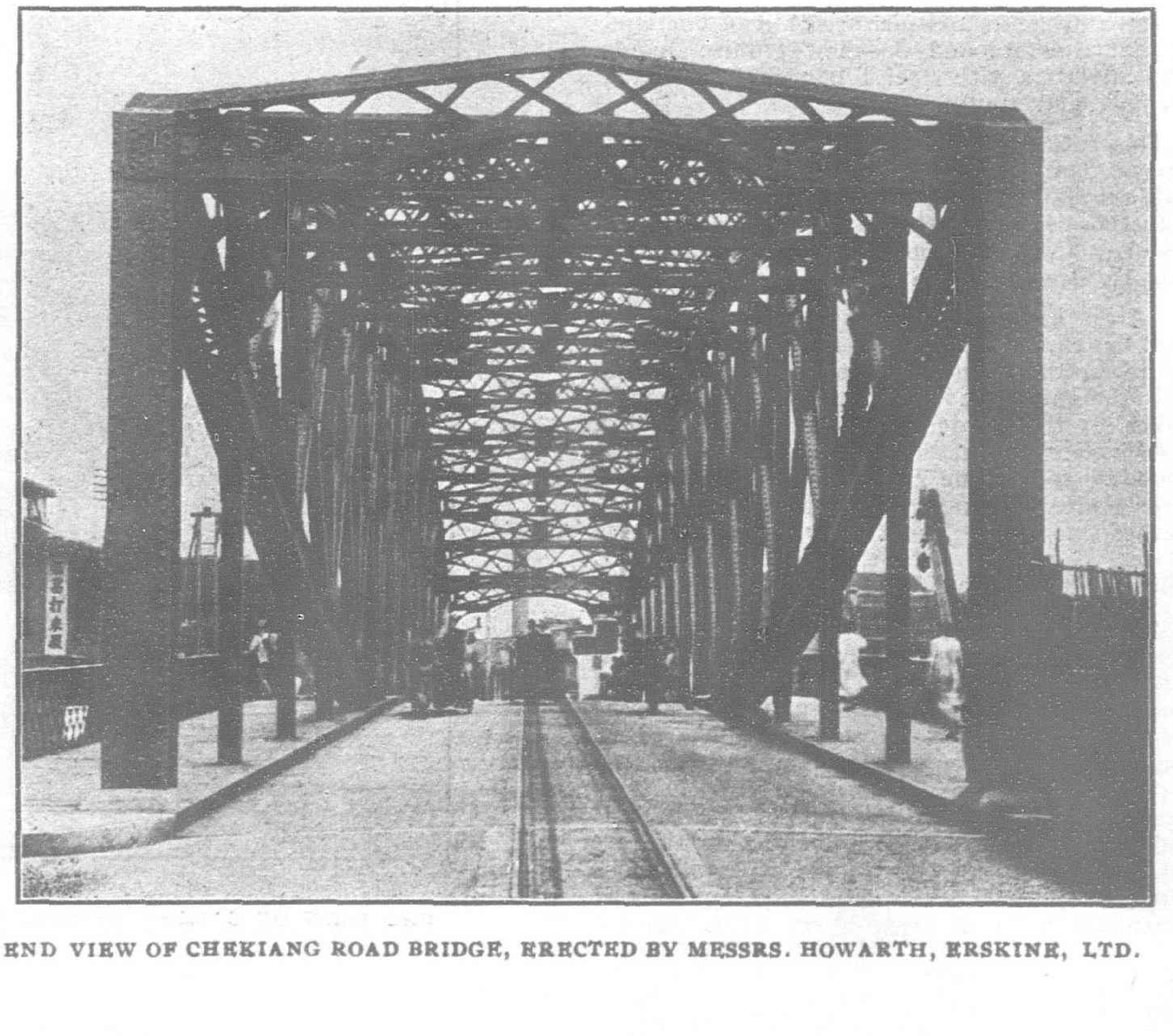
"A contract has been entered into with Messrs. Stolz & Kind for the construction of Shantung Granite Pylons on the wing walls of the abutments and the same firm's tender has been accepted for the construction of boundary walls on the South approach. The latter, however, will not be erected at present.

"It is satisfactory to be able to record that up to the present no settlement of foundations has taken place since their completion."

The Chekiang Road Bridge.—The construction next in importance to the Garden Bridge is the Chekiang Road Bridge which was completed in February. This bridge is described in the Municipal Engineer's report for 1906 as follows:

"The Chekiang Road Bridge will be in one span of 196′ 0″, giving a clear waterway of 192′ 0′, with a maximum headway for boat traffic of 11′ 0″ above high water. The main girders are lenticular trusses, spaced 24′ 0″ apart; the carriageway will be 21′ 6″ between kerbs, and the footway cantilevers 8′ 0″ each. The total width of the bridge will be 40′ 0″ between parapets, the existing wooden bridge being 18′ 0″ wide. On account of the low level of Soochow and North Soochow Roads, particularly the latter, and to obtain the headway required by the Harbor Authorities, the approaches and the suspended floor of the bridge have a gradient of 1 in 20, and even with this rather steep gradient North Chekiang and North Soochow Roads will have to be considerably raised near the bridge. The abutments will be similar to those of the Garden Bridge.

"The South cofferdam was commenced in September, but practically no work was done in November as all the timber available was used at the Garden Bridge. The North dam was started in the middle of December and good progress is now being made; these dams take up the whole width of Soochow and North Soochow Roads, consequently all through-traffic has had to be stopped. The presence of a 25″ water main and a high pressure gas main add to the difficulties of constructing the North dam, while both at this bridge and the Garden Bridge the small amount of space available for the storage of plant and material is quite a serious hindrance to the work."



END VIEW OF CHEKIANG ROAD BRIDGE, ERECTED BY MESSRS. HOWARTH, ERSKINE, LTD.

In his report on this bridge for 1907 Mr. Mayne says:

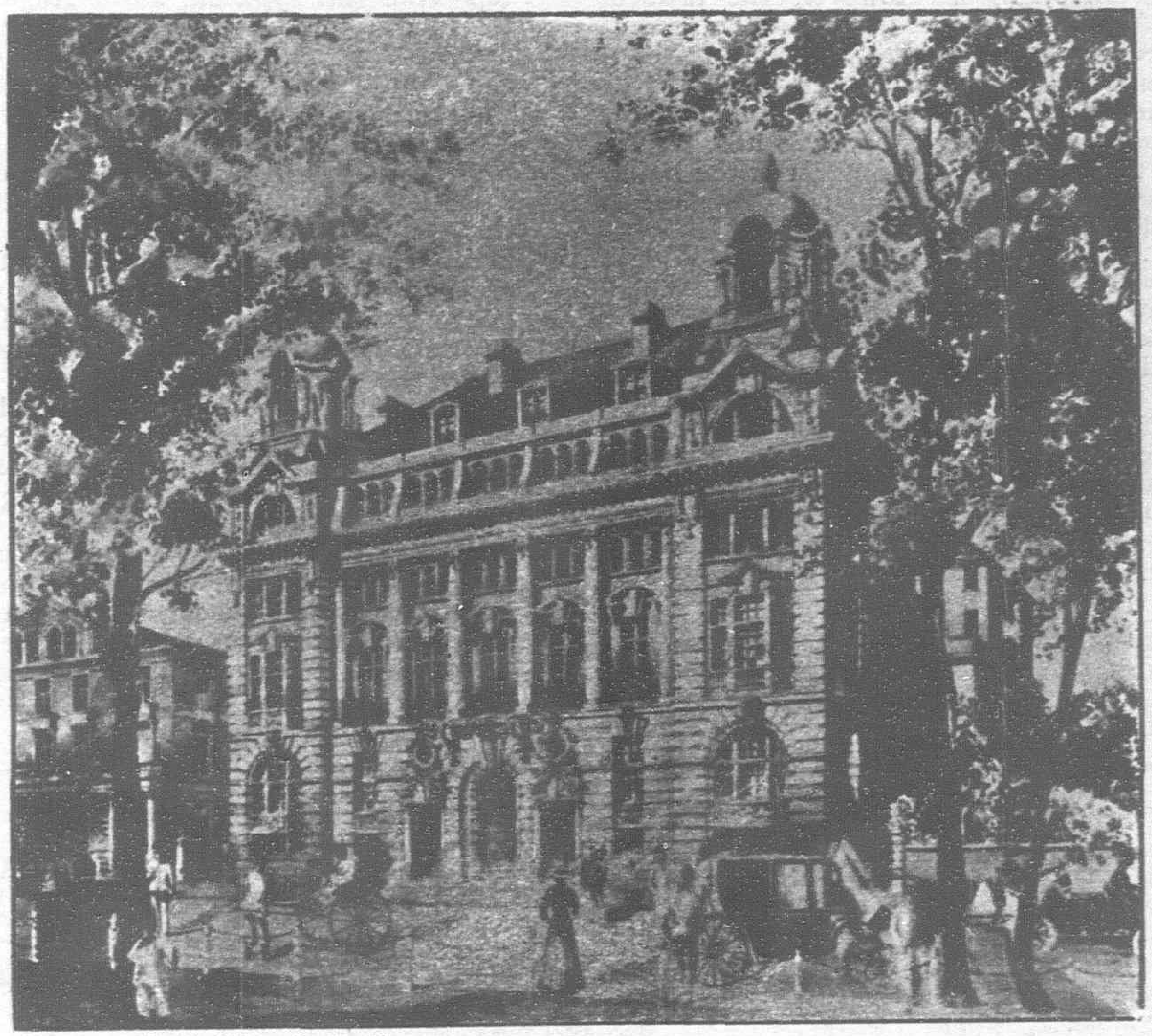
"The cofferdam work of this bridge was not in full swing until the middle of December of last year. The concreting of the South dam commenced late in June and was completed to girder-bearing level by the beginning of September. The North abutment was commenced on August 1 and was finished to the level of girder bearings by the end of September.

"Delivery of the steelwork upon the site commenced on November 27, and by the end of the year the erection was complete and the rivetting well in hand. A tender from the Ewo Lumber Depôt, for decking this bridge with Jarrah planking, has been accepted, and it is expected that the work will be completed by the end of February."

"Seventeen tenders were received for the supply and erection of the steelwork for the two bridges, and included tenders from firms in England, Germany, United States of America, France and Belgium. The highest tender was £34,500 for the Garden Bridge and £16,500 for Chekiang Road Bridge. The lowest and accepted tender *viz.* £17,000 for the Garden Bridge and £7,220 for Chekiang Road Bridge, was that sent in by Messrs. Howarth, Erskine, Ltd., of Singapore, for whom the Cleveland Bridge Co. of Darlington, England, manufactured the steel. A contract was entered into with Messrs. Howarth, Erskine, by which they were to complete the erection of the Garden Bridge in December 1907 and the Chekiang Road Bridge in September 1907. Messrs. Parry & Bidder, of Westminster, were appointed Inspecting Engineers to supervise the manufacture of material and the preliminary building of the structures in England on behalf of the Council.

THE PHILIPPINES ROSIN AND TURPENTINE COMPANY

This company has been formed with a capital stock of ₱150,000 for the purpose of exploiting the pine forests of Benguet in the production of tar, pitch, spirits of turpentine and rosin to meet the ever increasing demand. The prospectus announces Major W. H. Anderson, a leading merchant of Manila, as president, and Mr. Chas. S. Derham, general manager of the Insular Lumber Company, as Vice-President. D. Englebert is secretary and Mr. Wm. A. Derham, treasurer.



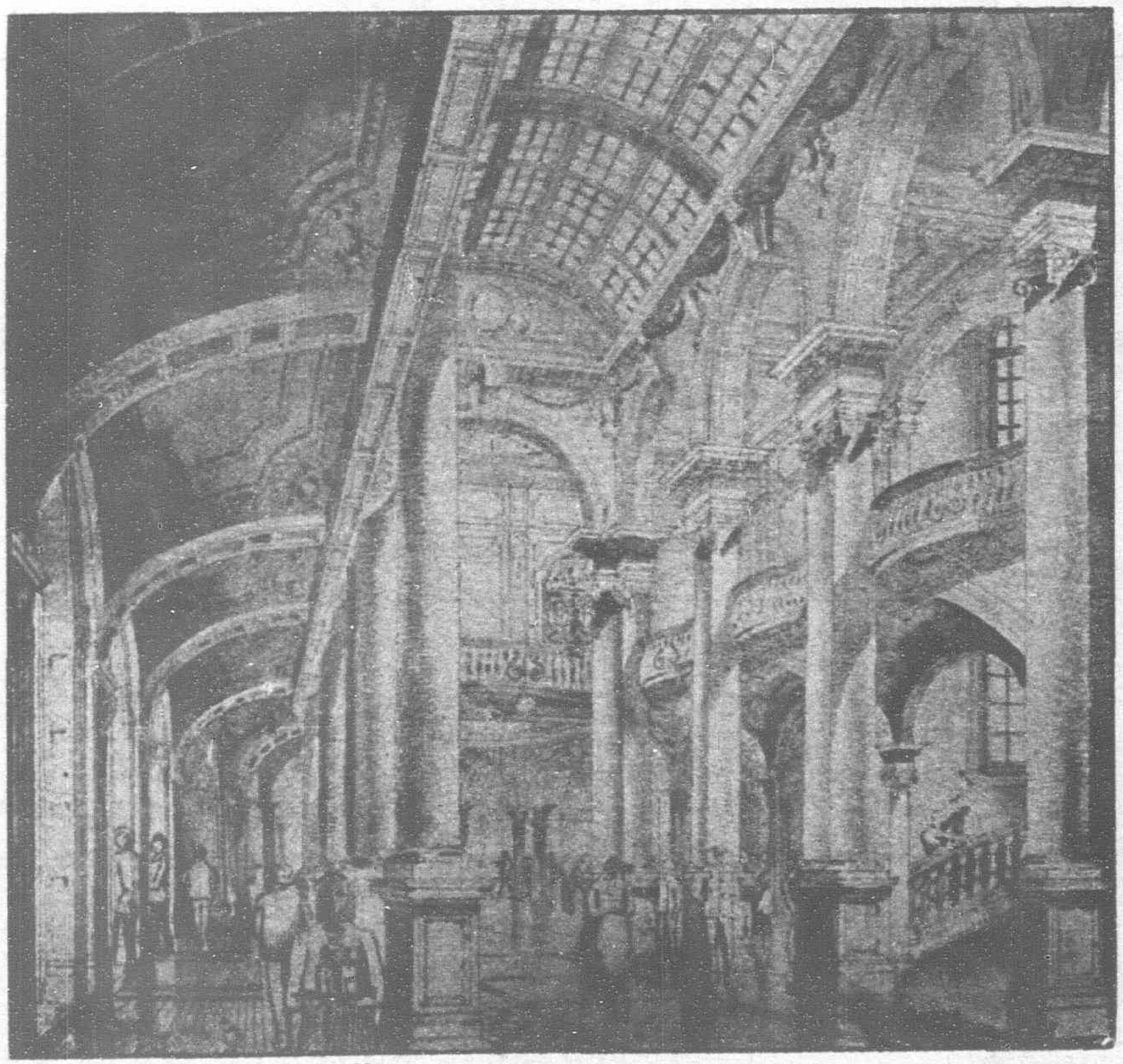
Courtesy, North China Daily News.

THE NEW HOME OF THE SHANGHAI CLUB

The report on the yield of resin from Benguet pine, after a thorough investigation by the Philippine Bureau of Science, compares most favorably with the yield from the most successful resin producing areas in the world. This report gives the yield from one tree in two boxes for 32 hours at 857 grammes. According to the best report made by the United States Bureau of Forestry, one tree in the Southern pine belt yielded 951 grammes from one chipping in seven days.

The local demand in the Philippines for the last fiscal year in the Philippines is shown in the importations of 123,380 pounds of rosin, 25,000 gallons of spirits of turpentine, and 40,924 pounds of tar and pitch.

The company proposes to use only the most improved methods and equipment and its announcement seems to be based on a very conservative estimate. The pine area of Northern Luzon is large and gives unlimited scope for successful operation. The promoters are gentlemen of excellent standing and marked business ability.



Courtesy, North China Daily News.

THE MAIN HALL OF THE NEW SHANGHAI CLUB BUILDING

SHANGHAI LUMBER FOR THE PHILIPPINES

The China Import and Export Lumber Co., Ltd., of Shanghai received an order for one hundred thousand feet of Oregon pine from the Export and Import Lumber Company of Manila this month.

THE HONGKONG TYPHOON, JULY 27 AND 28, 1908

*By REV. JOSE CORONAS, S. J., Assistant Director of the Weather Bureau.

This typhoon in its leading characteristics and also in its path was very like to that of September 18, 1906. However, the area of the storm was somewhat larger in the present case, seemingly in the proportion of 5 to 3, and besides, the center passed closer to Aparri; it was undoubtedly due to these circumstances that the Manila Observatory was able to announce the existence of the storm in the Balintang Channel on the morning of the 26th, as we shall presently see.

On this occasion it was once more clearly seen how useful it would be in such cases to have telegraphic communication with the meteorological station of Santo Domingo, situated as it is about half way between southern Formosa and northern Luzon. For this reason and because of the extraordinary intensity with which the typhoon struck the neighboring colony of Hongkong, we believe our readers will be interested if we study at some length the path of the storm.

Origin of the typhoon.—The Director of Hongkong Observatory, Mr. F. G. Figg, begins his report on this typhoon, dated August 8, with the following remarks referring to its origin:

"The typhoon which struck the colony on the night of the 27th to 28th July last was possibly formed on the 25th to the eastward of the Balintang Channel. But as this typhoon must undoubtedly be classed as one of small area, in the absence of any data from the Pacific, this can not be certainly affirmed. There is, in any case, no evidence whatever of its existence prior to the 25th. On this day a slight fall of the barometer took place in Luzon and S. Formosa, although pressure remained slightly above the normal over both areas."

We would have nothing to add to these remarks if the data that we have received from the Western Carolines and the Ladrone Islands did not give us on the 21st some slight indications of the existence of a typhoon to the northwest of Guam. It is to be regretted that we do not possess a greater number of observations from the Pacific, which would enable us to determine more accurately the place of origin or formation of this typhoon. Those made at Sumay, Guam, from the 20th to the 23d of July are given in the following table:

METEOROLOGICAL OBSERVATIONS AT SUMAY, GUAM, LADRONES ISLANDS, JULY 20 TO 22, 1908.

Date and hour	Pressure.	Difference in 24 hours	Wind.		Weather.	Rainfall (daily total).
			Direction.	Force		
July 20:	*mm.*	*mm.*		0-12		*mm.*'
6 a. m...	758.16	—1.81	E	0	0	......
2 p. m...	57.45	+0.04	ESE	0	c	......
6 p. m...	57.88	+0.14	SSE	0	o	1.4
July 21:						
6 a. m...	57.26	—0.90	SSW	1	o	......
2 p. m...	56.61	—0.84	SW	2	o	......
6 p. m ..	58.22	+0.34	SW	1	o	53.3
July 22:						
6 a. m...	57.78	+0.52	S	1	o	......
2 p. m...	57.47	+0.86	SE	2	o	......
6 p. m...	57.61	—0.61	SSE	2	o	0 5

The negative difference of the barometer noted at 6 a. m. of the 20th was perhaps owing to a somewhat extraordinary rise, which seems to have taken place early in the preceding morning and was possibly due to some rains or

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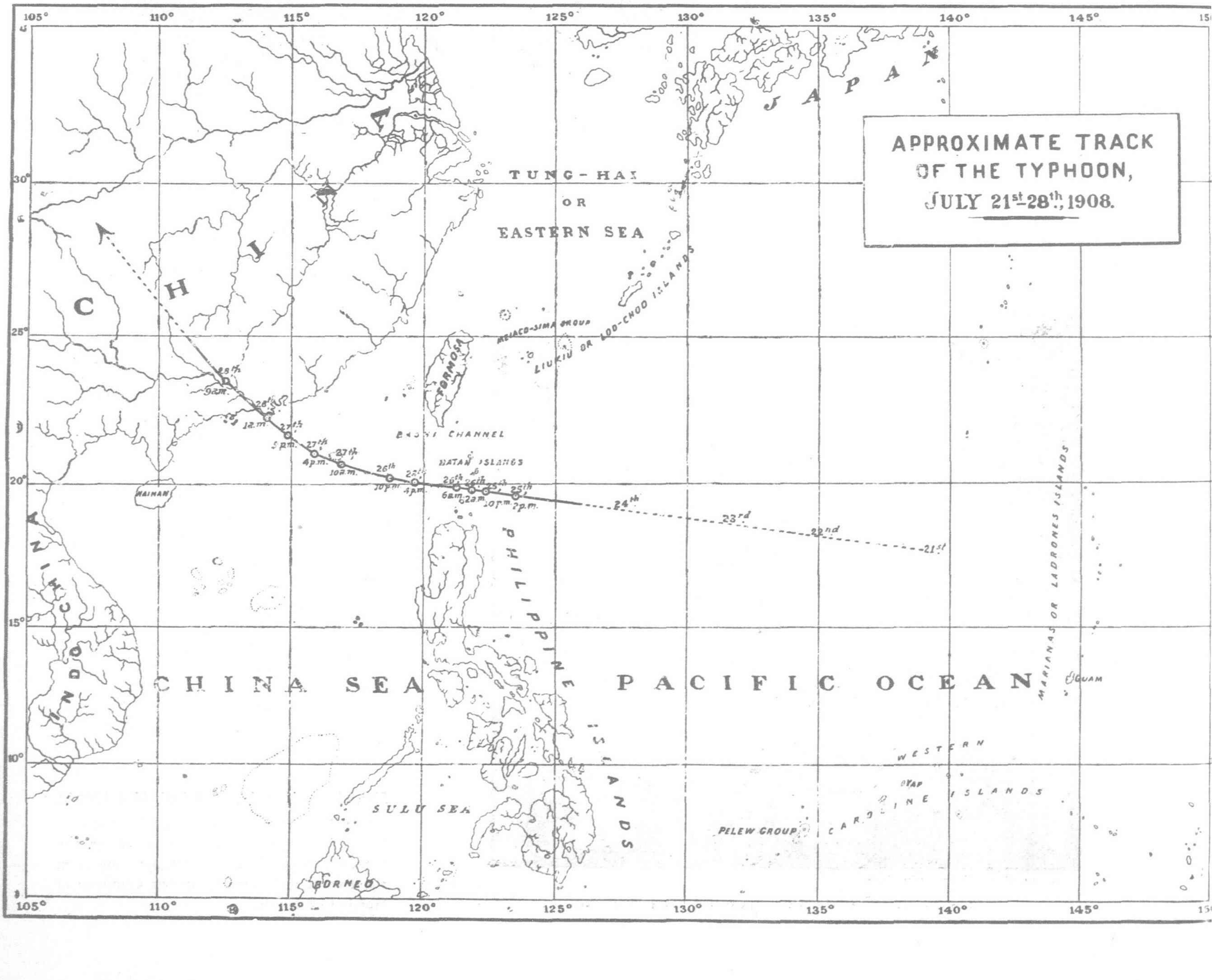
*Reprint from the Bulletin of the Weather Bureau for July, 1908.)

Plate



showers observed from 5.30 to 7.05 a. m. of that day, according to the report of the observer at that station. Whatever it may have been, it is certain that there was in that place a slight fall in the barometer on the 21st with winds from the SSW and SW, which backed to the S and SSE on the 22d. Moreover, the weather was rainy almost the whole afternoon of the 21st, the pluviometer recording an amount of rainfall of 53.3 millimeters.

In Yap, Western Carolines, there were also winds from the S and SW from the afternoon of the 23rd to the morning of the 25th, and the rain gauges collected 52.58 millimeters during the 22d.

These data seem to indicate, although not in a very convincing manner, the presence of a typhoon on the 21st to the NNW or NW of Guam moving westward.

We wish to offer another reason here which will make somewhat more probable the existence of this typhoon prior to the 25th, and hence give greater force to the indications afforded us by the observations of Guam and Yap just mentioned. We refer to the sea swell from the NE, which was observed on the 23d, 24th, and 25th in Borongan, a station on the eastern coast of Samar entirely open to the Pacific. This swell must have been of some importance as the observer there decided to telegraph it to the Central Observatory in the afternoon of the 24th and again in the morning of the 25th.

For these various reasons, in plate V which shows the track of this typhoon, the 21st appears as the date of the beginning, although we can only give probable values to the portion between the 21st and 24th inclusive.

The typhoon in the Balintang Channel.—The following table contains the meteorological observations taken from the 25th to the 27th in Koshun (southern Formosa), Laoag (northwestern Luzon), Aparri (northern coast of Luzon) and Santo Domingo (Batan Islands).

KOSHUN.

Date.	Pressure.	Difference in 24 hours	Win l. Direction.	Win l. Force.	Weather.
July 25:	*mm.*	*mm.*		0-12	
5 a. m......	757.7	+0.5	N	4	c
1 p. m......	57.5	— .5	N	4	c
9 p. m......	56.9	—1.8	N	2	
July 26:					
5 a. m......	54.7	—3	NE	6	c
1 p. m......	56.7	— .8	E	6	....
9 p. m......	56.5	— .4	E	4	....
July 27:					
1 p. m......	57.5	+ .8	E	6	r
9 p. m......	58.7	+2.2	E	4	....

LAOAG.

Date.	Pressure.	Difference in 24 hours	Wind Direction.	Wind Force.	Rainfall (daily total)	Weather.
July 25:	*mm.*	*mm.*		0-12	*mm.*	
6 a. m....	757.53	—0.70	ESE	1	....	o
2 p. m....	56.66	—1.09	WSW	1	92.2	o
6 p. m....	56.30	......	......	......	....	..
10 p. m...	57.10	......	......	......	....	..
July 26:						
2 a. m....	55.90	......	......	......	....	..
6 a. m....	55.08	—2.45	SSE	1	....	r
2 p. m....	55.31	—1.35	E by S	1	56.9	r
6 p. m....	55.20	—1.10	......	......	....	..
10 p. m...	56.80	— .30	......	......	....	..
July 27:						
2 a. m....	55.80	— .10	......	......	....	..
6 a. m....	55.17	+ .09	E	1	....	b
2 p. m....	55.78	+ .47	SW	4	8.1	oq
6 p. m....	56.70	+1.50	......	......	....	..
10 p. m...	58.50	+1.70	......	......	....	..

APARRI.

Date.	Pressure.	Difference in 24 hours.	Wind. Direction.	Wind. Force.	Rainfall (daily total).	Remarks
July 25:	*mm.*	*mm.*		0-12	*mm.*	
2 a. m..	758.03	—0.05	SW	1	....	Veil of A-S in the morning; rain with gusty S winds during the night.
6 a. m..	57.47	-- .89	SW	1	....	
2 p. m..	56.86	—1.35	S	1	....	
6 p. m..	55.15	—2.76	SW	2	....	
10 p. m.	55.49	—3.61	S	3	20.3	
July 26:						
2 a. m..	54.39	—3.64	S	4	....	Somewhat squally during early morning; weather improving at night.
6 a. m..	54.25	—3.22	S	3	....	
2 p. m..	55.21	—1.65	SW	2	....	
6 p. m..	55.14	— .01	S.	0	....	
10 p. m.	56.52	+1.03	SW	1	49.8	
July 27:						
2 a. m..	56.22	+1.83	SW	1	....	Lightning in the SW quadrant at night.
6 a. m..	56.43	+2.18	SE	1	....	
2 p. m..	56.54	+1.33	NE	1	....	
6 p. m..	56.54	+1.40	NE	0	....	
10 p. m.	59.21	+2.69	W	1	....	

SANTO DOMINGO.

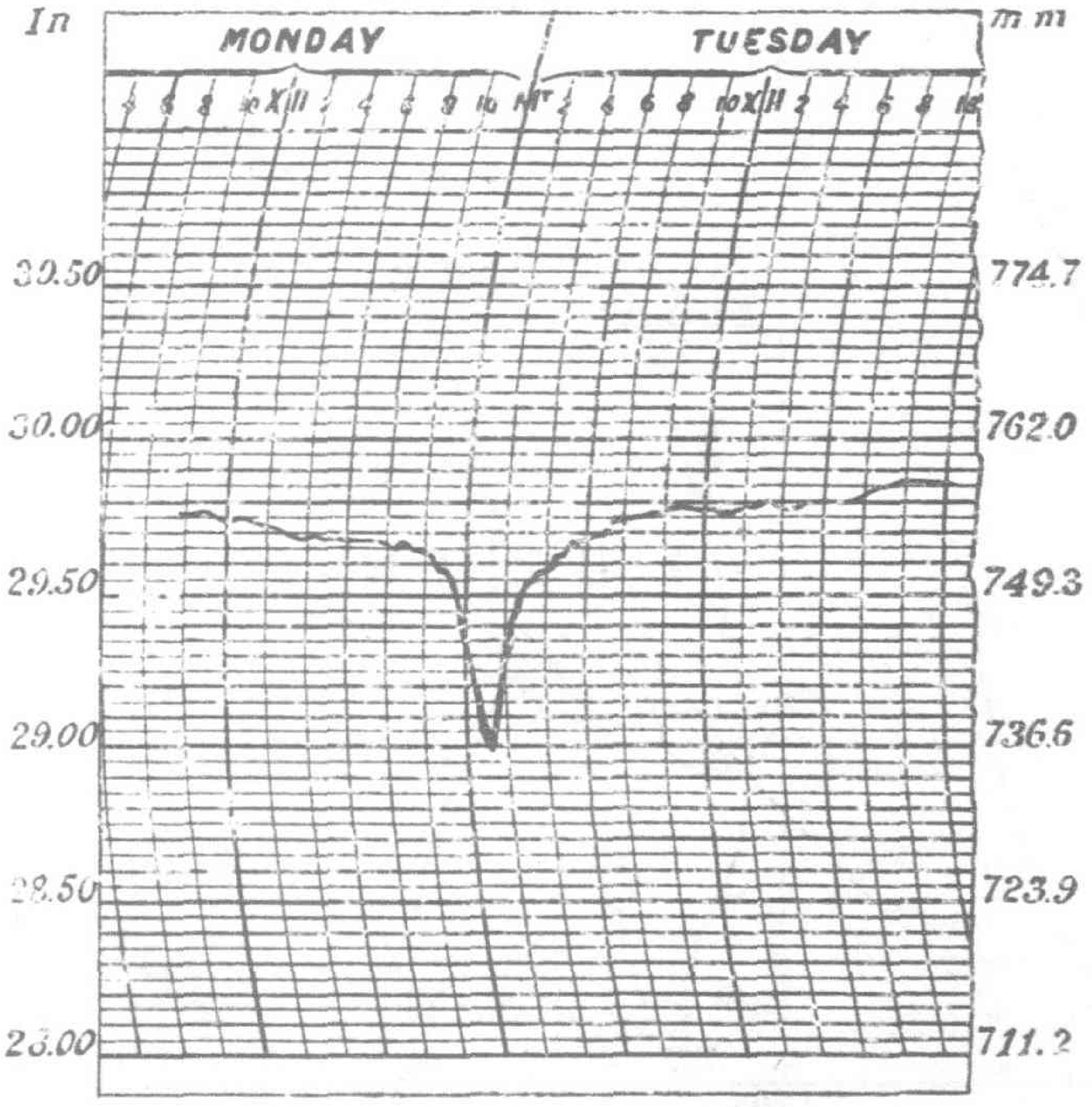
Pressure.	Difference in 24 hours.	Wind Direction.	Force.	Rainfall (daily total).	Remarks.
mm.	*mm.*		0..12	*mm*	
July 25:					Thunders toward N E at 5 p. m.; slight rain with gusty winds at times, and lightning in the SE and SW quadrant at night.
......	......	....	....	....	
756.74	—1.72	NW	3	....	
55.35	—2.41	NW by N	3	13.7	
53.60	......	N	....	....	
53.90	......	NE	....	....	
July 26:					Wind from E, force 5-6 in the early morning, from SE moderating in the morning; rain in the afternoon and night.
51.90	......	....	....	....	
53.81	—2.93	SE	3	....	
55.66	+ .31..	SE	1	16.5	
55.70	+2.10	....	....	....	
56.80	+2.90	....	....	....	
July 27:					Drizzle early in the morning; lightning in the SE and NW quadrant at night.
56.20	+4.30	....	....	....	
56.81	+3	SE by E	2	....	
57.03	+1.37	SSE	2	1	
56.90	+1.20	....	....	....	
58.90	+2.10	....	....	....	

The observations of Santo Domingo indicate most clearly the existence of a cyclonic center to the east of the Balintang Channel on the 25th. Those of Aparri, even taken alone and without reference to those of other stations in Luzon and Formosa, show so unmistakably the passage of a typhoon by the north of that station that the observer, Mr. Manuel Delgado, did not hesitate to send the following telegram to the Central Observatory on the morning of the 26th:

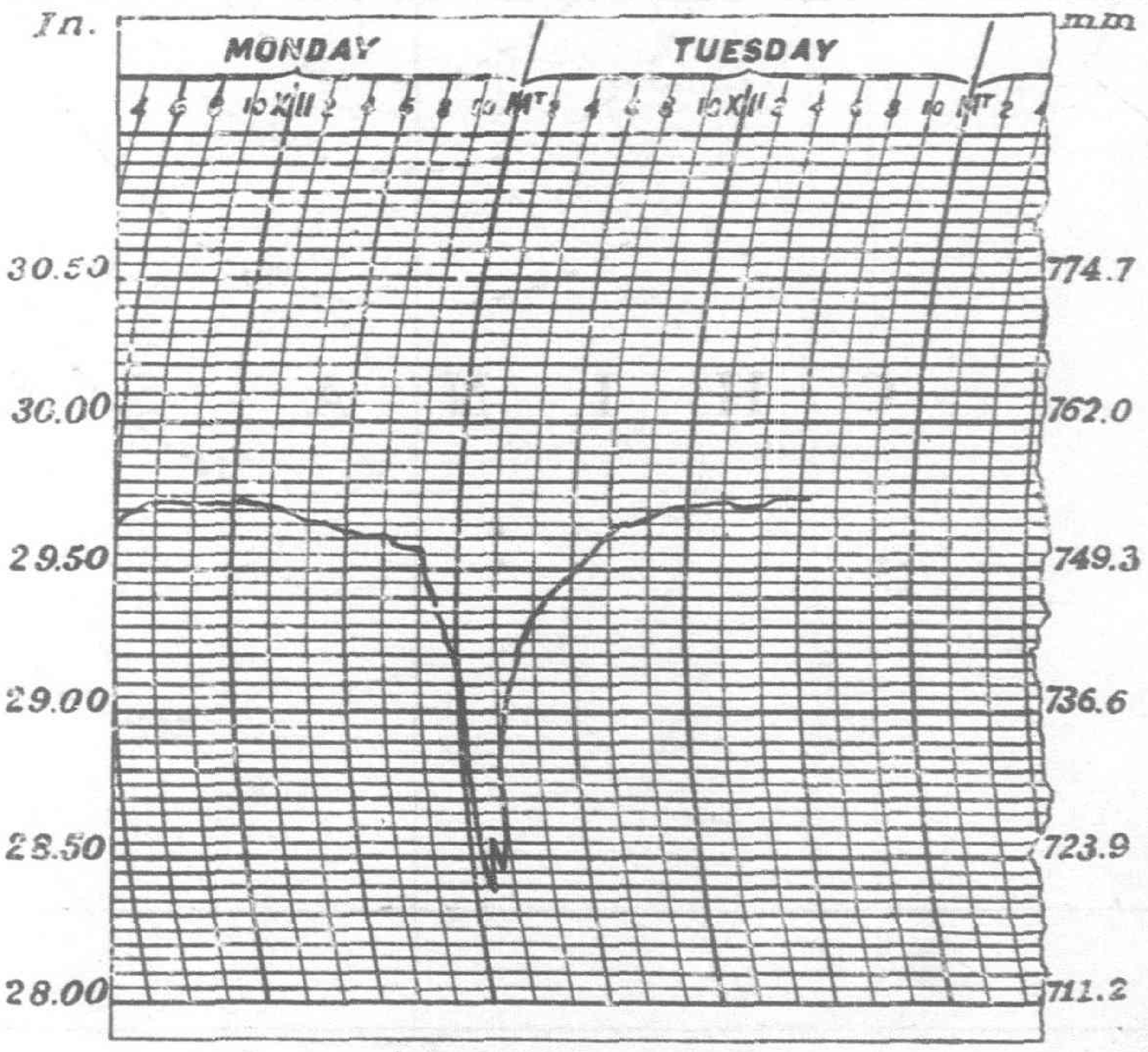
Plate VIII.

THE HONGKONG TYPHOON JULY 27--28, 1908.

BAROGRAPHIC RECORDS.



S.S. "TEAN" HONGKONG HARBOUR.



ISLAND OF HONGKONG, ABOUT 1 OR 1½ MILES SOUTH OF VICTORIA.

Marked fall (of barometer). South winds. Continuous rain during night. Second Signal hoisted.[1]

As soon as the Manila Observatory received the observations of Formosa and Luzon taken at 5 a. m. and 6 a. m., respectively, on the 26th, the following typhoon warning was sent to Japan, Formosa, the China coast and Indochina:

> July 26, 9.50 a. m.: Typhoon in or near the Balintang Channel, direction unknown.

Before noon we received from Hongkong Observatory this other telegram which confirmed the Manila warning:

> July 26, 10.55 a. m.: Typhoon near the Balintang Channel, direction unknown.

The veering of the winds observed in the station of Santo Domingo from the afternoon of the 25th to the afternoon of the 26th was so complete and gradual that had the observations of that station been received in Manila or sent to Hongkong there would have been no room for doubting the existence of a well-developed cyclonic center,[2] which coming from the Pacific, crossed south of the Batan Islands in a westerly direction. It is, indeed, a pity that up to the present we have not been able to secure telegraphic communication with a station of such an importance on account of its geographical position.[3]

The first three small maps of plate VI show the isobars and the position of the cyclonic center at 2 p. m. and 10 p. m. of the 25th and at 6 a. m. of the 26th.

The typhoon in the China Sea.—The weather map for the morning of the 27th seemed to

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[1] This signal indicates that a typhoon is passing by the north at a considerable distance.

[2] We say this, because the Director of the Hongkong Observatory did not think there was question of a severe typhoon, but rather of a depression, until the afternoon of the 27th. We copy here a part of the daily weather notes issued by that Observatory on the 26th and 27th:

On the 26th at 11.45 a. m.: "The barometer has fallen moderately over Formosa and Luzon owing to the appearance of a depression in the neighborhood of the Balintang Channel."

On the 27th at 12.15 p. m.: "The depression, which at present gives no indication of being a severe disturbance, has moved westward. It appears to be situated about 300 miles to the SE of Hongkong."

The Manila Observatory gave out the following information referring to this typhoon in the daily weather notes for the 26th, 27th and 28th:

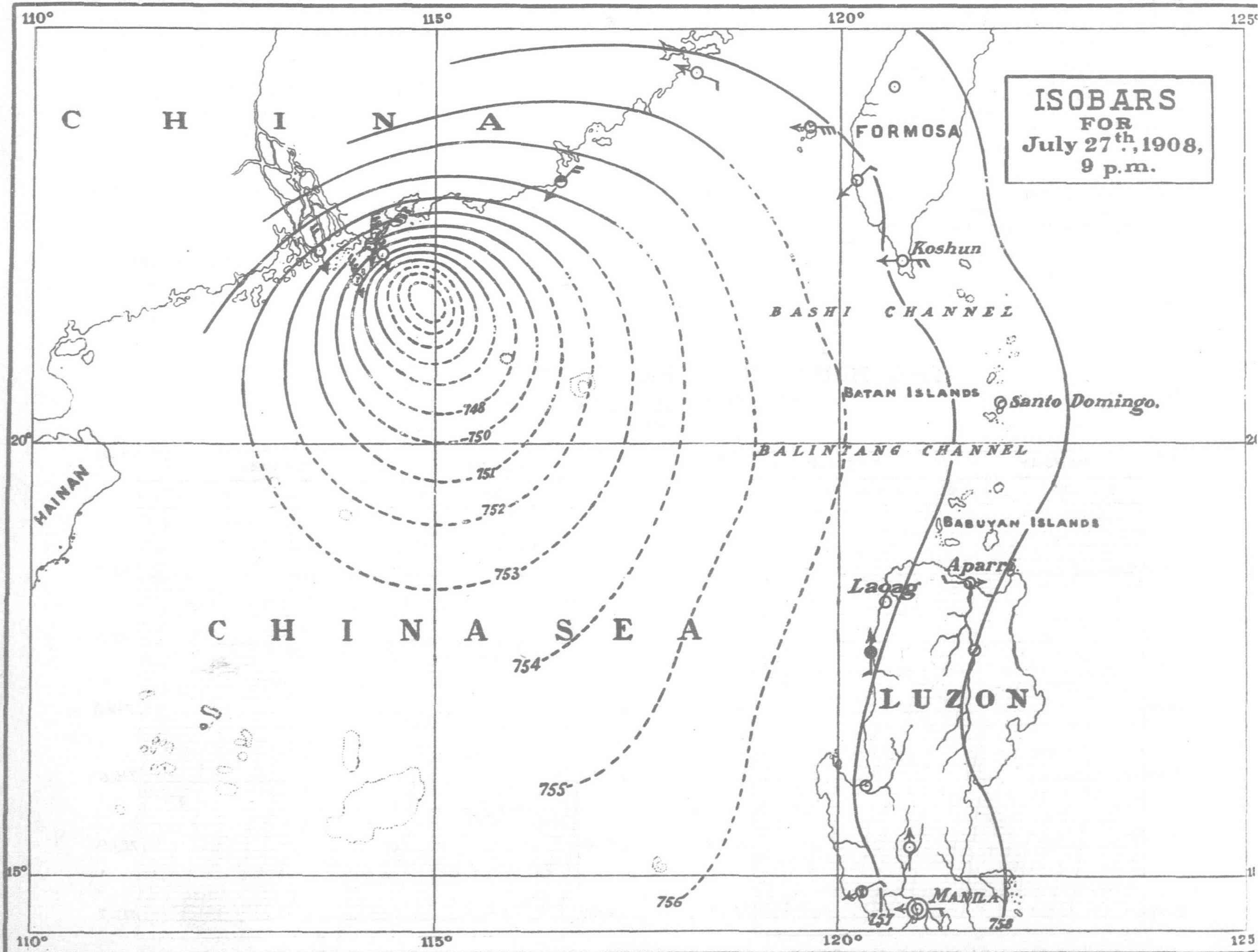
"July 26, 12.20 p. m.: Pressure is lowest over the Balintang Channel. * * * A typhoon seems to have been developing since yesterday evening near or over the Balintang Channel: its direction, however, can not yet be ascertained."

"July 27, 12.15 p. m.: Pressure is lowest over the northern part of the China Sea. The typhoon situated yesterday over the Balintang Channel seems to have moved away westward."

"July 28, 12.20 p. m.: It seems that the typhoon of the preceding days entered the Continent last night not far from Hongkong."

[3] As a result of the typhoon we are now discussing, the Governor-General of Hongkong wrote to the Governor-General of the Philippines suggesting to him that information from the Batan Islands would be of great value both to Manila and to Hongkong, and urging in favor of the establishment of a wireless station at Santo Domingo de Basco. The Governor-General of the Philippines after having obtained the favorable opinion of the Director of the Weather Bureau took up the matter with the Insular postal authorities and replied to the Governor-General of Hongkong stating that he hoped there may be sufficient money available to carry into effect the project suggested by His Excellency and that, in case there was no money available for the purpose, he would apply for an appropriation to the Legislature at its next session.

Plate VII.



N.B.-The barometric readings have been corrected to standard gravity.

indicate quite clearly the existence of a typhoon in the northeastern part of the China Sea to the west of the Balintang Channel and moving in a westerly direction. Accordingly the Manila Observatory sent a second typhoon warning to Japan, Formosa, the China coast and Indo-china, as follows:

27th 11 a. m.: [Typhoon west of the Balintang Channel, moving west.

This warning was likewise confirmed by a telegram from Hongkong Observatory:

'27th, noon: Typhoon SE of Hongkong moving west."

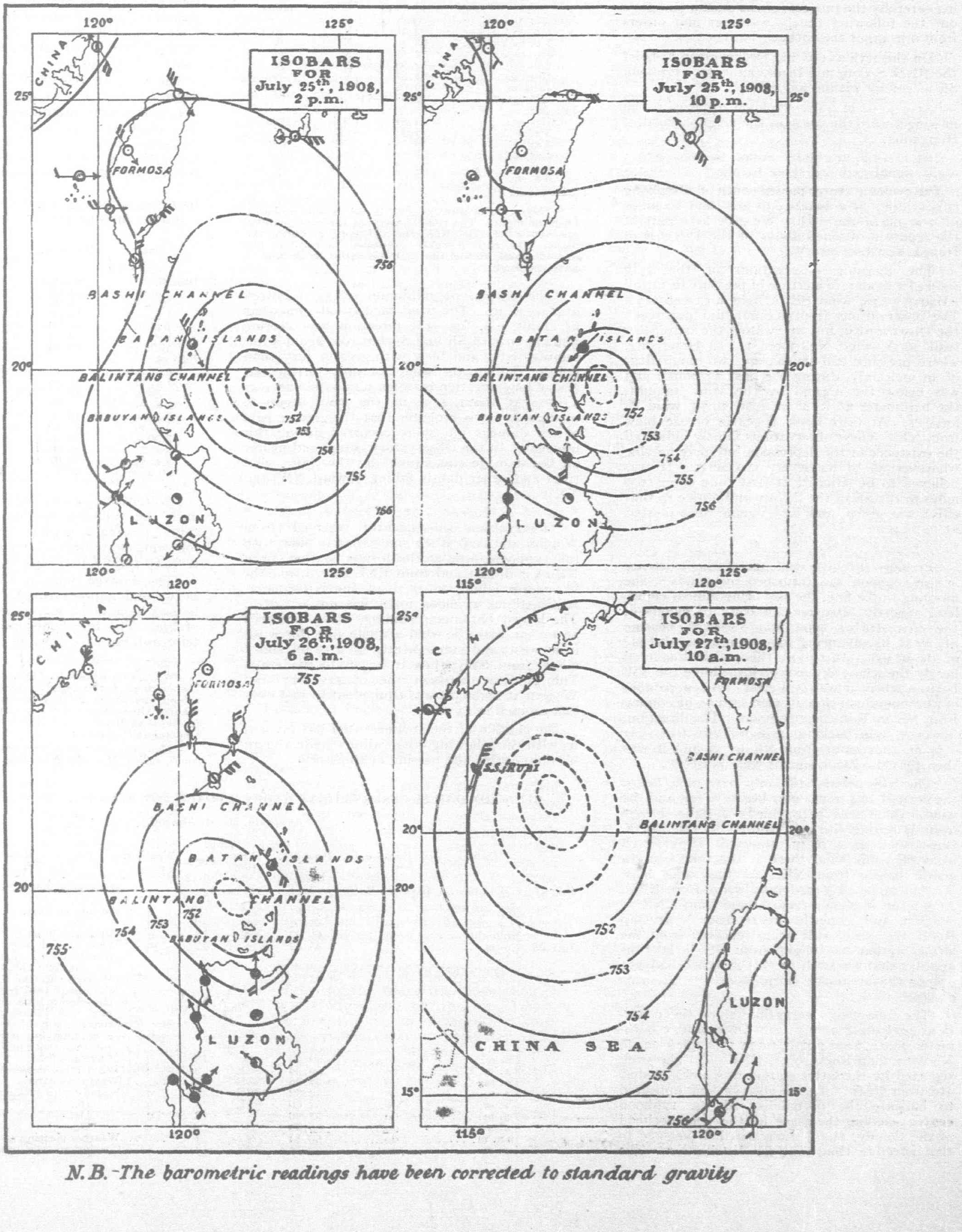
We regret that we have so few observations from the China Sea made during the passage of this typhoon. The only records that have come into our hands are those of the steamer *Rubi*, which sailed from Manila for Hongkong at 10 a. m. of the 25th, and therefore felt the influence of the storm, although she anchored in Kowloon Bay five hours and a half before the vortex passed south of Hongkong. These observations are given in the following table:

METEOROLOGICAL OBSERVATIONS MADE ON BOARD THE STEAMER "RUBI," JULY 25 TO 27, 1908.

(Captain, Mr. R. Almond.)

Date.		Position. Latitude N.	Position. Longitude E.	Pressure.	Wind. Direction.	Wind. Force.	Weather.	Remarks.
		° ′	° ′	mm.		0-12		
July 25:	10 a. m.	14 35	120 59	758.68	Calm	....	o	Leaving Manila for Hongkong.
	4 p. m.			57.92	SW	1	o	
	10 p. m.			57.92	W	2	o	Heavy rain at times.
July 26:	10 a. m.			56.14	WSW	4		Westerly swell.
	Noon	17 58	117 40		W to NNW	4		Dull with rain.
	4 p. m.			54.37	W	3		Continuous rain.
	10 p. m.			54.62	NW	3		Lightning; NE swell.
July 27:	10 a. m.			53.60	NNE	5		Rain; easterly swell.
	Noon	21 34	114 48					Rough confused sea.
	4 p. m.			51.83	NNE	6		Swell from ESE, also heavy bank to the E.—Barometer rose 0.76 mm. *from 4 p. m. to 7 p. m.*

Plate VI.


ISOBARS FOR July 25th, 1908, 2 p.m.
ISOBARS FOR July 25th, 1908, 10 p.m.
ISOBARS FOR July 26th, 1908, 6 a.m.
ISOBARS FOR July 27th, 1908, 10 a.m.
120°
125°
115°
25°
20°
15°
CHINA
FORMOSA
BASHI CHANNEL
BATAN ISLANDS
BALINTANG CHANNEL
BABUYAN ISLANDS
LUZON
CHINA SEA
S.S. RUBI
752
753
754
755
756

N.B.-The barometric readings have been corrected to standard gravity

The fourth small map of plate VI represents the isobars and the position of the typhoon at 10 a. m. of the 27th.

The typhoon in the neighborhood of Hongkong.—If the typhoon had continued its movement of translation westward, there would have been no fear that Hongkong would have suffered much from the cyclone. But, unfortunately for the neighboring colony, a quite remarkable change took place in the direction of this movement in the afternoon of the 27th. The typhoon was moving W by N in the morning of the same day, but it inclined more toward the north in the afternoon, so that, by the evening, it was moving in a NW by W direction. See in plate VII the isobars and the position of the cyclonic vortex at 10 p. m. of the 27th.

The Hongkong Observatory continued watching carefully the progress of the storm, and gave out the following timely warnings and orders from 6 p. m. of the 27th:

"On the 27th at 6 p. m.: Orders given to hoist the Black S. Cone and Drum (indicates a typhoon SE of colony within 300 miles).

"At 9.30 p. m.: The typhoon appears to be moving toward the coast in the neighborhood of Hongkong.

"At 11.15 p. m.: Order issued to hoist No. 3 night signal and fire three bombs."

The cyclonic center passed south of Hongkong Observatory at a distance of less than 10 miles at 1 a. m. of the 28th. We give here part of the report mentioned above of the Director of Hongkong Observatory:

"The morning observations of the 27th showed a moderate increase of pressure in Luzon (Aparri 29.78, wind SE, a light air, clear sky). The observations from Koshun did not reach the Observatory, but at Swatow the barometer read 29.71, wind NE, force 1. In Hongkong, where pressure had given way two-hundredths of an inch only, during the past 24 hours, and was below the normal by the same amount, the barometer at 10 a. m. read 29.75, wind E, force 1. At Gap Rock a gentle breeze blew from NE. These observations faintly indicated the existence of the depression but gave no clue whatever as to its severe character. It was believed to be situated at that time about 300 miles to the SE of the Colony and notice to that effect was given, and Red signals were hoisted at 12.15 p. m.

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"Perhaps the best evidence of the existence of the typhoon was furnished by clouds. The morning broke fine, the sky being almost cloudless. Shortly after noon a bank of clouds of the cirro-stratus type was observed bearing SE by E, its advancing edge being at an altitude of about 30°. At 4 p. m. this pall had covered nearly the whole sky except just above the NW horizon where it was still clear. A few patches of alto-cumulus below it were seen to be coming from NE by E in the afternoon. The direction, however, was backing, a significant fact. At 6 p. m. they came from NE by N and it was then that the Black signals were hoisted.

"The barometers, still only 0.02 inch below the normal at 4 p. m., now began to fall and the wind, which had been chiefly a light breeze from E during the day, shifted to the North. Gap Rock at 4 p. m. reported 'slight swell from SE,' the wind there at the time being a gentle breeze from NE. At the same hour Waglan reported a moderate breeze from ENE. At 7 p. m. it blew a fresh breeze from NNE at Waglan, and a gentle breeze from N at Gap Rock, the swell still being reported from the latter station as "slight from SE." It thus appears that sea swell in this instance had not outrun the advancing storm to any considerable distance.

"The following observations show the conditions prevailing at 9 p. m. Observatory barometer 29.64, wind north, force 5, Waglan 29.58, NNW, 7, Gap Rock 29.57, NNW, 6. The swell reported by the latter station was now 'moderate from ESE.' These observations appeared to indicate the probability of the typhoon center reaching the coast in the neighborhood of the Colony, and I then wired a message to that effect to Hongkong for distribution. The barometer at the Observatory still read only 0.12 inch below normal, but the gradient between here and the lighthouses was increasing.

"The barometer now commenced to fall quickly and the wind to rise and at 11.15 p. m. (standard time) No. 3 night signal, accompanied by the firing of the three bombs was made. This indicated that the gale then blowing was likely to increase to full typhoon force. The following observations are from Observatory records, the time being given in Hongkong mean time.

METEOROLOGICAL OBSERVATIONS MADE AT HONGKONG OBSERVATORY JULY 27 to 28, 1908.

Date.	Pressure.	Wind. Direction.	Wind. Velocity (miles per hour).
July 27:	*mm.*		
6 p. m.	753.10	N	6
7 p. m.	53.10	N	12
8 p. m.	52.59	N	17
9 p. m.	52.84	N	26
10 p. m.	51.83	N	39
11 p. m.	49.03	N	53
Midnight	42.68	NE by N	75
July 28:			
1 a. m.	34.81	ESE	*72
2 a. m.	44.21	SSE	81
3 a. m.	48.78	SSE	54
4 a. m.	51.32	S by E	42
5 a. m.	52.59	S by E	36
6 a. m.	53.60	S	23

* The record of wind velocity is not reliable probably from midnight. The spindle carrying the cups snapped just above the supporting arms at some time during the night. The cups however continued to revolve; but loss of speed during the high velocities is certain to have occurred.

"The barometric minimum, 28.85, occurred at 1.03 a. m. The wind moderated somewhat at about 1 a. m.—the direction was veering quickly toward SE and S—but rose again a few minutes later and blew with greater fury than before, the squalls being not only terrific but also of long duration between 1.15 a. m. and 1.45 a. m. At about 2. a. m. the wind began to moderate. It is probable that the greater part of the damage on shore occurred during this interval. In the Observatory compound nearly all the damage was caused by the SSE wind trees and other debris falling toward NW and NNW.

* * * * * * * * * *

"Observations subsequently received from Waglan and Gap Rock show that it blew with full typhoon force at the former station, from NE at midnight and from ENE at 1 a. m., the barometer falling to 28.70 at the latter hour. At Gap Rock typhoon force was not recorded. The lowest barometer reading, 29.24, occurred at 1 a. m. with the wind a whole gale (force 10) from west, and subsequently at 2 a. m. and 3 a. m. from SW, when it began to moderate. The gradient between the Observatory and Waglan at midnight was equivalent to just over half an inch in 15 miles."

The captain of the steamer *Rubi* has favored us with the following observations made aboard his ship during the passing of the storm:

METEOROLOGICAL OBSERVATIONS MADE ON BOARD THE STEAMER ' RUBI," JULY 27-28,1908.

(Captain, Mr. R. Almond.)

Date.	Position.	Pressure.	Wind. Direction.	Wind. Force.	Weather.	Remarks.
		mm.		0-12		
July 27: 7.27 p. m.	Kowloon Bay.	....	....	....	......	Barometer fell 0.76 mm. from 7 p. m. to 8 p. m.
10 p. m.	....do.......	751.57	NE	7	q	Continuous rain.
11 p. m.	....do.......	48.52	NE	9	q	Do.
Midnight......	....do.......	41.67	NE	12	q	Hurricane force.
July 28: 1 a. m.	....do.......	35.32	E to SE	12	q	Wind shifted from E to SE blowing with terrific force. Typhoon center would be at that time about 8 miles away between Waglan and Gap Rock. At the height of the squall took both aneroid and typhoon barometers both quivering between 715.00 mm. and 722.62 mm. but as cabin was shaking a good deal did not take them as a reading, but a few minutes afterwards got them both at 735.32 mm. steady.
2 a. m.	....do.......	40.40	SE	12	q	Hurricane force.
3 a. m.	....do.......	50.56	SSE	9	q	Wind force decreasing: frequent squalls.
4 a. m.	....do.......	51.06	SSE	7	......	Weather clearer.
5 a. m.	....do.......	52.33	SSE	5	q	Squally with rain and decreasing.
6 a. m.	....do.......	53.60	SSE	4	q	Do.
7 a. m.	....do.......	53.86	S	3	q	Do.
8 a. m.	....do.......	55.38	S	3	q	Do.
10 a. m.	....do.......	56.14	S	1	......	Weather clearing up.
4 p. m.	... do.......	57.16	SW	2	......	Continuous light rain.

It is not our intention to offer here a list or summary of the damages and losses of life caused by this typhoon both in the city and in the harbor of Hongkong. We will only copy a few lines from a local newspaper in order that our readers may have an idea of the severe intensity of the storm:

"The typhoon which visited the colony on Monday night was a more severe one than that of the 18th of September, 1906; but happily we have not the same sad tale of disaster to chronicle. It caused more damage ashore than the 1906 typhoon, but far less afloat. This was due solely to the fact that the Observatory on this occasion gave the community timely warning of its approach and so enabled adequate precautions to be taken."

In Plate VIII can be seen reproductions of two barographic records obtained aboard the steamer *Tean* (at anchor in the port of Hongkong),[1] and in the vicinity of Mount Kellet in the Island of Hongkong about 1 or 1½ miles south of Victoria.[2]

The typhoon passed NE of Macao and was nearest to that city at 2 a. m. of the 28th when the barometric minimum 741.99 millimeters was registered there with westerly winds of hurricane force. The observations made on the 27th and 28th in the Observatory of that port are included in the following table:

METEOROLOGICAL OBSERVATIONS MADE AT MACAO OBSERVATORY, JULY 27 TO 28, 1908

Date.	Pressure.	Wind. Direction.	Wind. Force.	Weather.
July 27:	*mm.*		0-12	
4 a. m.	754.68	SE	0-1	c
10 a. m.	55.00	SE	0-1	c
1 p. m.	54.89	ENE	1	c
4 p. m.	53.36	Calm	....	o
10 p. m.	52.84	NNW	2-3	od
Midnight	50.00	NNW	2-3	oqrl
July 28:				
0.30 a. m. ...	49.47	NW	5-6	oqrl
1 a. m.	46.98	NW	10	oqrl
1.30 a. m. ...	43.65	NW by W	11-12	oqrl
2 a. m.	41.99	W	11	oqr
2.30 a. m. ...	42.09	W by S	11	oqr
3 a. m.	43.29	WSW	10-11	oqr
3.30 a. m. ...	44.58	S	10	oqr
5 a. m.	48.87	S	8	oqr
8 a. m.	54.02	S	7	opq
10 a. m.	55.44	SW	5-6	oq

The typhoon on the Continent.—Early on the 28th the typhoon was on the Continent, its center passing south and west of Canton. The following statement of its effects at that city is taken from *The Hongkong Daily Press*:

"The damage done by the wind and rain is heavy and unprecedented. Over two hundred houses have collapsed, in some cases, with loss of life. The telephone, electric lightning, and telegraph lines are down in every street and the

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We are indebted to Capt. D. W. Outerbridge for the original of this curve. Another similar curve obtained aboard the S. S. *Fausang* was furnished to the Manila Observatory by Captain Malkin through the kindness of Mr. Stuart J. Fuller, American Vice-Consul General at Hongkong.

[2] This is a copy of a reproduction published by the *South China Morning Post* August 8, 1908.

regular service will take a few days to restore. It is dangerous to move about the city just now as the walls that have been damaged are coming down now and then with a crash. * *"

Some remarks on this typhoon.—The typhoon increased in speed in the China Sea, the rate of velocity being about 8½ miles per hour when it crossed south of the Batan Islands, and about 14½ miles per hour when it struck Hongkong. It seems that it increased likewise in depth after it left the Balintang Channel; but once in China it soon began to fill up gradually as is generally the case in the typhoons which land in the Asiatic Continent.

According to the Director of Hongkong Observatory, when the typhoon passed close to that colony, "the radius of the area over which strong gales blew does not appear to have exceeded 35 miles in average." The area over which winds with full typhoon force were recorded seems to have been of less than 20 miles radius.

SHANTUNG COAL RAILWAY

Many are the difficulties in the path of the Chinese who undertake railway construction. It is now nearly a year and a half since operations began on the coal road in the Yiehsien district, S. W. Shantung, near the Kiangsu border. First, the permission of the Board of Communications, Peking, had to be obtained, a transaction which, report has it, cost the railway company the sum of a hundred thousand taels. Then extensive land purchase had to be made for the 30 miles of railway from the port on the Grand Canal, Tai-en-chwang to the town, Tsao-chwang, near which the mines are located. These two towns give the railway its official name the Tsai-tsao Railway.

In the vicinity of Yihsien, the land becomes more valuable and some is held by wealthy families who have taken it into their perverse heads to block the enterprise by holding out for exhorbitant prices. The matter, after being in suspense for eight months or more, is now to be arbitrated by a deputy of the Shantung Governor.

Notwithstanding, progress is being made. The line is modeled as to gauge and construction after the German line from Tsingtau to Tsinan. Some three miles have been built from Tai-en-chwang and a number of cars have been put together and are being used to send forward construction material. The expectation is that Yihsien will be reached next autumn. An engine house is being built at Tienchwang and those in charge would put an engine together could they find all the parts. One half the building material, ordered through the firm of Messrs. Arnhold Karberg & Co. who have the entire contract for supplies, is now delivered.

All the work thus far has been done by Chinese. The Chief Engineer, Mr. Kuoa from Canton, impresses one with being a bright man. The first locomotive engineer is from Tsingtau and the mechanic who is putting the cars together is from Tsinan. Kilns erected on railway premises are burning brick for the construction of stations. Work is going forward on all sides steadily though slowly.

The boilers for stationary engines in the mines have also arrived. The mines are of immense importance as one of the principal sources of the coal supply of the Tientsin-Pukow line. It is now an acute question as to who shall build the connecting railway between the mines and the trunk line 15 miles to the west.

*ELECTRICITY FOR SANDAKAN

We have been favored with a copy of an agreement entered into between the Government and the British Trading Company, of 3 Godliman Street, St. Paul's Churchyard, London, under which the Company have acquired certain exclusive rights for a period of ten years, for the supply of electric light and power to Government and private consumers within the town limits. It would be wearisome to quote long clauses from a long agreement, but the following facts will be of interest.

1. The Company is to be in a position to supply electric light within 24 months from 8th December, 1908.
2. The first system of distributing mains will be laid in Jalan Kapok and Lorong Lima.
3. The current for private lighting will be supplied on the meter system at a charge of 30 cents per unit, the consumer bearing the cost of installation beyond the meter. The Company will provide the first supply of incandescent bulbs, and the public may instal their own wires if desired.
4. The Government have entered into a contract to take a supply of current for public lighting.
5. The supply of current will be continuous for 24 hours in each day.

We are informed on good authority, though we make the statement with due reserve, that the cost of electric light per unit in England varies in different localities from 7½d to one shilling. If this is the case, the terms quoted above are distinctly favorable. The fact also that the current will be available all day will enable consumers to install electric fans—no small boon in a hot office.

Although the rights granted to the Company are exclusive, the monopoly is of a very modified nature. The Company will have to compete first with kerosine, and secondly with the many varieties of artificial lights such as 'Lux,' 'Kitson,s,' acetylene, etc., which are daily being improved and cheapened.

*CENSUS OF PEKING

The census was made by "families," and these in turn were divided into "principal families" and "additional families," or into "principal tenants" and "subtenants." The total number of families in the inner or Tartar city is given as 79,009, and in the outer or Chinese city as 46,999, making a total of 128,008 families.

Recent Japanese official works give the number of people per household in the urban districts of Japan as about 4.99. An unofficial census made in 1907 of the city of Swatow, in Kuang-tung Province, works out 5.4 per household, and the unofficial census of 1881 of Wen-chou, in Chekiang Province, 5.14. Chinese officials and others who have been consulted on the question think that in the case of Peking the number of people per household is probably higher than in other localities in China, some saying that it should be reckoned as high as 8. I think that 5.5 may be taken provisionally as a fair approximate average. This would make the present population of Peking, exclusive of the suburbs (but they are unimportant), 693,044 persons.

As supplementing the above census of population I forward an official statement of the schools, governmental and private, mostly on western lines, together with the number of students of either sex, now open in the 23 police districts of Peking. From this it appears that there are 183 schools for boys and 17 for girls, with a staff of 1,200 men teachers and 100 women. The attendance is 16,282 boys and 771 girls.

Assuming that 25 per cent of the population of Peking is below 15 years of age (in Japan this portion of the population is reckoned at 33 per cent, but in view of the rate of infantile mortality in China I have adopted a lower per cent), we have 173,261 children, one-half of which (86,630) probably is of age to attend school. The result of two years' work is highly creditable to the energy of the officials and shows the interest taken in the education of children by the people.

§FERRO-SILICON POISONING

The recent cases of death from inhalation of fumes from ferro-silicon on the s.s. *Ashton*, by which five Russian immigrants lost their lives at sea on the night of December 12-13 last, have been investigated by the Royal Institute of Public Health, and the report thereon has been sent us.

"Ferro-silicon is a coarse metallic powder, which, under ordinary circumstances, possesses no particular odor, but if confined, powdered or moistened, a distinct phosphorus odor can be detected. It is manufactured by heating a mixture of iron ore, quartz, coke, and lime in an electric furnace, and is used by steel makers as a convenient method for the addition of silicon to certain grades of steel. A little consideration will give some indication of the nature of the poisonous gases likely to be formed when this product is moistened. Many minerals contain phosphoric acid and arsenic. Consequently, when such a mixture, as above described, is strongly heated, phosphides arsenides, carbides, and silicides may be formed, and these may, under certain conditions, evolve phosphoretted hydrogen, arseniuretted hydrogen, acetylene, and silicon hydride.

In order to determine which of the above gases is mainly evolved when ferro-silicon is moistened, the following experiments were made:—

(a) Two hundred grammes of the powdered and moistened substance were placed in a horizontal glass tube, 19 ins. long 1 in. in diameter. This tube was connected with another tube about 11 ins. long and ½ in. in diameter, and filled with small pieces of potassium hydrate in order to absorb any sulphuretted hydrogen. Air was then gently drawn through the tube for about three hours, and allowed to pass through a 10 per cent. solution of silver nitrate contained in a De Koninck absorption apparatus. A dark precipitate was immediately produced in the silver solution, and at the end of the period was considerable in amount. This precipitate might be due to all or any one of the above-mentioned hydrides.

(b) Experiment (a) was repeated, with the exception that the potassium hydrate tube was removed and ammoniacal cuprous chloride solution substituted for the silver nitrate. As no precipitate was formed in the copper solution it is evident that acetylene is not formed under these conditions.

(c) Experiment (a) was repeated, but in this case the gases were passed through nitrite acid. The acid solution was evaporated almost to dryness, hydrochloric acid added, and the mixture evaporated to complete dryness. The addition of hydrochloric acid and subsequent evaporation to dryness was repeated and the residue dissolved in distilled water, when no trace of insoluble silica was found. Silicon hydride is, therefore, not evolved from moistened ferro-silicon at ordinary temperatures. Having excluded acetylene and silicon hydride from the gaseous mixture, there remains the possibility of phosphoretted and arseniuretted hydrogen.

(d) Some of the silver solution obtained in experiment (a) was then filtered, and the filtrate, which would contain arsenic (if present in the gases) as arsenic acid, was introduced into a Marsh-Berzelius apparatus, with the result that a slight mirror was obtained after prolonged heating. Some of the precipitate was then introduced into the apparatus, when the characteristic phosphorus flame was immediately produced, being most marked, and this, in spite of the facts that the heating of the glass tube was continued, which would tend to decompose phosphoretted hydrogen, and that the flame was burning at the end of a tube not furnished with a platinum jet. It is therefore evident that, although arseniuretted hydrogen is produced in small quantities, the chief gas evolved is undoubtedly phosphoretted hydrogen, a gas which is stated to be so poisonous that 0.02 per cent. of it in air is fatal to small animals within half-an-hour.

The result, therefore, of the inquiry into the cause of death of the five Russian immigrants on board the s.s. *Ashton* is that they died from the effects of gaseous emanations from the cargo (ferro-silicon), mainly attributable to the presence of phosphoretted hydrogen.

This investigation is of great scientific interest, as possibly it is the first occasion in this country in which deaths have been known to be attributable to this cause. * * * *

The pathological effects of such poisonous gases as phophoretted hydrogen and the like are at present so little understood that it has been determined to undertake further experiments in connexion with this subject."

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* British North Borneo Herald.

*Consular Reports.

§*Mining Journal.*

FAR EASTERN COMPANY REPORTS

THE GREEN ISLAND CEMENT COMPANY.—The twentieth annual meeting of the Green Island Cement Co. was held at the office of the general managers, Messrs. Shewan, Tomes and Co., on Saturday, April 3. Mr. R. Shewan presided and those present included Sir Paul Chater, Dr. J. W. Noble (directors), L. F. Campbell, J. F. Wright, P. C. Potts, A. G. Gordon, W. A. Dowley, A. Babington, C. Klinck, J. A. Young and Choa Leep Chee.

The Chairman said—Gentlemen: We have now the pleasure to lay before you our report and accounts for 1908, copies of which are in your hands. We propose, after making the usual allowance for depreciation of the Company's plant, machinery and buildings, etc., and placing the nominal amount of one thousand dollars to reserve fund in accordance with the Articles of Association, to pay a final dividend of fifty cents per share, making nine per cent. for the year, and carry forward to new account $3,756.74. The dividend is $40,000 less than last year when we paid ten per cent., but our sales are actually only $20,000 less, the other $20,000 being absorbed by depreciation.

As I anticipated at the last meeting, we have done a slightly larger turnover and considerably increased our production but our sales were not so good in their results, for one thing, our two large local contracts for the docks were completed, and thus two good outlets for our cement were closed to us. It is pleasant to be able to say that the engineers and contractors for both these important undertakings were entirely satisfied with Green Island cement, and have given it the highest testimonials for quality. Last year the work of the factory was hampered and interfered with by strikes of the coolies engaged on the cement kilns. They had become very troublesome, refusing to work when they thought fit, and at other times demanding higher wages. In July this culminated in all the men at four kilns leaving, and to train men to take their place took us two months. Finally, in November, all the men threatened to strike, upon which we decided to let them all go, and to start afresh with an entirely new set. These new men have, of course, taken us several months and much trouble to educate, but the lesson appears to have had its effect, and we look for peace in future. Our sales were not affected, as we had plenty of stock on hand, but our output was of course reduced by the loss of so much working time. Our expenditure during the year on capital account has been heavy but no item has been incurred that was not absolutely necessary. At Macao the principal expenditure was for reclaiming land for mud drying, for retaining-walls necessitated by a land slip, and for a new boiler for the patent dryers. At Hok Un there was spent about $40,000 on buildings, and about $90,000 on plant and machinery made up of a variety of items, such as conveyors, cement handling plant, clay loading plant, boiler makers shop, carpenters shop, new saw mill, cooperage, elevator house for cement bins, etc., etc., too numerous to detail, and no one item very large in itself. The additional outlay on Launches and Lighters explains itself. We are doing a large business in the harbour and up the river to Canton and Macao, and more tonnage of this kind was badly wanted. I am glad, however, to say that our heavy expenditure on capital account is now drawing to a close. It followed naturally on the expansion of our business, and the extension of the works, but our plans for the additional facilities and accommodation required are now almost complete and all we estimate we have to spend this year is about $30,000 for a second packing house, about $20,000 for another boiler, and some $10,000 on sundry small items. At Deep Water Bay we have added a new cement pipe machine which will turn out pipes of cement concrete, at much less cost than our present glazed pipes, as kilns to burn these pipes are not required. Cement pipes are coming greatly into vogue all over the world, and we believe we shall have a good sale for them once the prejudice in favor of the glazed pipe has been overcome. The result of last year's working of this factory is very unsatisfactory, but is not so discouraging as it appears, as it is in great measure the result of our striking a run of bad clay which rendered the contents of as many as fifteen kilns quite worthless while the wages and expenses of about three months were thrown away. At present we are turning out first class pipes, bricks and tiles, the demand for which appears to be increasing, especially from the outports. In spite, therefore, of the last year's result we have not given up hope of making this department pay its way. I am told that it has been said that we are over-capitalized, but no one who knows anything about cement factories would say this. So far from that being the case, the facts are that an equally complete and up to date factory could not be installed for what our works and land stand at, even if you threw in the land for nothing. The fact is that few appreciate the extent of our installation. It is not by any means the small undertaking it was a few years ago, and I doubt if any single factory in England or the continent is better equipped or has more modern plant and machinery than we have. The item of stores in stock at Hok Un $163,200 may seem large but it is not really so, as it comprises not only ordinary stores but spare parts and renewals for the various mills and other machinery and also stocks of firebricks for kiln linings. All these things have to be obtained from home and as any one part is liable to be wanted at a moment's notice and its absence might have serious consequence, we are bound to keep a good stock on hand for any emergency. I do not think I need labor this point, for all practical men will appreciate its importance and can understand how the want of spares might throw a whole mill out of work, but I wish to make it clear to you that the item includes much more than stores in the ordinary sense of the word. As for the future and this present year in particular it has commenced well, the first three months being better than the same three last year, the greater portion of our whole output of cement is contracted for and we anticipate no difficulty in disposing of the rest at good prices. Of course, in certain markets we have to meet and accept competitive prices, but so far we have had no trouble in holding our own. It is true that the present low price of silver is against imported cement, and so far in our favor, but on the other hand it has raised the cost of coal laid down here. Our raw material too costs slightly more owing to the imposition of lekin duties in the interior. On this point I should like to remove the impression which has been made by reports circulated to the effect that we were unable to obtain regular supplies of raw material. We have had no difficulty whatever in that respect and no trouble beyond the result usually consequent upon an increased demand—I mean a rise in the price—and that trouble we have obviated by making arrangements to obtain some of our supplies from Haiphong, a step which has already had a perceptible effect on the attitude of the Chinese contractors. But the reports that we could not get stone and that our supplies were running short were quite untrue, and had no foundation, and could only have been spread by interested parties. As far as we can see now there need be no anxiety either about the supply of raw material on the one hand or about the disposal of the finished product on the other. The use of cement has increased enormously within the last few years, and it seems to me that if there is any climate for which reinforced concrete is peculiarly adapted for buildings and structure of all kinds it is that of this country. We know by bitter experience how ill fitted our tiled roofs are to stand a typhoon, and how little resistance wooden beams and rafters offer to the attacks of white ants. It is, however, now being borne into everyone's mind that wood is a very wasteful and poor material for houses out here and that iron and concrete are altogether preferable, being far more durable and better able to resist the climate and are actually cheaper and more economical in the end. All this makes for increased consumption of cement, and to further this object and to provide an object lesson to builders and contractors we have gone to some trouble and expense to shew over at our works what can be done with concrete reinforced by wire or metal. We have also taken up the making of concrete blocks for building purposes to take place of bricks, and have just finished a godown for our friends the Standard Oil Co. which I think will prove a revelation to most people of what can be done in this way. The uses and consumption of cement are thus multiplying all over the world, making it one of the most important articles of commerce to-day and in China, particularly with the advent of railways and other public works which must follow as the country opens up and begins to utilize its resources, there must be always a steady and growing market for this Company's product. I think, therefore, that when I say you need have no anxiety about the future of Green Island Cement, I am only speaking the sober truth and am not saying more than the facts themselves warrant.

There were no questions and the Chairman moved the adoption of the report and accounts as presented. The motion was seconded by Dr. J. W. Noble and carried unanimously.

Mr. M. Moreno proposed that Sir Paul Chater, Dr. J. W. Noble and Hon. Mr. W. J. Gresson be re-elected as consulting committee. The motion was seconded by Mr. Dowley and carried.

Mr. Wright proposed that Messrs. W. H. Potts and A. O'D. Gourdin be re-elected as auditors. This was seconded by Mr. Gordon and carried.

The chairman: That is all the business, gentlemen. I am very much obliged to you for your attendance. Dividend warrants will be ready on Monday morning.

CHINA AND MANILA STEAMSHIP CO., LTD.—The twenty-sixth ordinary general meeting of shareholders in the China and Manila Steamship Co., Ltd., was held at the offices of the general managers, Messrs. Shewan, Tomes and Co., at noon, April 3rd. Mr. R. Shewan presided and those present included Dr. J. W. Noble, Messrs. H. P. White (directors), A. G. Gordon, C. Klinck, R. C. Walker, A. Temperley, H. F. Campbell, A. A. Cordeiro, and G. Moffatt (secretary).

The Chairman said:—Gentlemen, We now lay before you the report and accounts for 1908, copies of which have been in your hands for some time. I regret that we have to again come before you with a poor showing for the year's work, but the same tale is being told by all shipping companies all over the world, and we cannot expect to be an exception. We all know that the trade of the world has shrunk in the last two years, but unfortunately for shipowners the supply of tonnage does not shrink equally rapidly, and until supply and demand are better adjusted than they are at present we cannot expect to see any great improvement in freights. Our earnings in 1908 were, however, rather more than in 1907, in spite of a heavy falling off in the cattle trade, but this was more than offset by increased expenses, as our coal bill, owing to the drop in the value of the dollar, was some $17,000 higher, our portage bill, our officers being all paid in sterling, was for the same reason nearly $5,000 more, while repairs were about $8,000 in excess of last year, a total of say $30,000, thus turning a profit on working last year of $18,000 into a loss this year of $12,000. But as I said a twelvemonth ago, we must not be disheartened, as we are only going through a cycle of bad trade, the present condition of shipping is abnormal and will change as trade revives and surplus tonnage is worked off. We have seen bad times and worse before, and will see them again I suppose, but we have also seen good times and will see them too again, and before very long I think. I suppose I shall be twitted with optimism and be told that I have no good grounds for it. Well, in Scotland we say that facts are "chiels that winna ding," so let me give you some facts. This is what I read in the *Investors'*

Review by last mail dated 27th February. "Last week's revenue figures were again good, income aggregating £5,256,137. Reckoning from Monday last there are thirty-three working days of the fiscal year remaining, and if the revenue for that period were to come at the same daily average as last week's receipts gave, March 31st would see the Chancellor of the Exchequer possessed of some £2,000,000 more than the estimate of last April. Our trade was not carried on unprofitably. The reports of the Commissioners of Inland Revenue showed how vast was the amount and how rapid the growth of the public wealth." So much for general trade, as for shipping the Chairman of the London and India Docks Company at their half yearly meeting stated that "what was satisfactory was that while in London, in their own docks they had had an increase in shipping tonnage of 51,000 tons last year, Hamburg had had a decrease of 364,000 tons, Antwerp a decrease of 127,000 tons, and Rotterdam a decrease of not very much short of 1,200,000 tons. Surely in face of these facts one has the right to be optimistic and to refuse to believe that our trade is leaving us. As for our own particular line we lost the benefit of the cattle trade with Manila for some time last year owing to quarantine restrictions, but that we do not expect to occur again, and we also hope to reap some good from the sugar crop, which is a very large one this year in the Philippines. As you will have seen from the newspapers we have had much trouble on board the steamers with opium smuggling into Manila. We have taken every precaution that a long experience can suggest to us to stop this practice, but from the ease with which the stuff can be hidden owing to its small bulk the result of the most rigorous search cannot be depended upon to absolutely ensure that there is none of it concealed on board. The opium question is no doubt a difficult one out here, but it has not been made simpler by the language of exaggeration, not to give it a shorter and less polite description, which has been indulged in by many at home who should know better. Charity it is said should begin at home, but one cannot help wondering if those good people whose minds are so exercised about the morals of the Chinese ever realize the condition to which a much greater number of their own people have been brought by similar indulgence in alcoholic liquors. They are so anxious about the opium mote in the Chinese eye that they ignore the alcoholic beam in their own and yet the word their Master used for such inconsistent professors was I think "Hypocrite." Be that as it may the unfortunate steamers have to suffer, while the time of their officers is taken up searching for a drug which will only be replaced, if it ever be displaced, by some other form of it in patent medicines or by alcohol which latter will certainly be no improvement on opium. As for the accounts they are simple and clear, and I do not think they require any comment, but I may say that the amount due for outstanding freights has almost all been since collected. Before I move the adoption of the report and accounts I shall be happy to answer any questions from shareholders.

There were no questions and the Chairman moved the adoption of the report. The motion was seconded by Mr. White and carried unanimously.

The re-election of Messrs. H. P. White, A. V. Apcar, and Dr. J. W. Noble as directors was moved by the Chairman, seconded by Mr. Cordeiro, and carried.

Messrs. W. H. Potts and A. O'D. Gourdin were re-elected auditors on the motion of Mr. Klinck, seconded by Mr. Gordon.

The Chairman: That is all the business, gentlemen. I am much obliged to you for your attendance.

Shanghai Gas Company, Limited.—The Report and Statement of Accounts for 1908, now presented by the Directors, testify to the continued prosperity of the Company.

The higher cost of carbonizing material, increased expenses and the loss which, for the first time, was incurred in the Company's Fitting business, were fully counterbalanced by the increased sales of Gas, and the Working Account for the year shows a profit of Tls. 241,193.13, or practically the same as that for 1907.

The net profit for the year, however, amounted to Tls. 219,162.58, a decrease of Tls. 29,788.92, as compared with 1907. The result was almost entirely occasioned by the interest incurred on cost of the recent extensive additions to the Company's Plant, and it is evident that until such New Plant is working to its full capacity, the Company cannot expect to reap all the profits to be derived therefrom.

The Directors have considered it advisable to write down considerably the stocks of material held in certain departments, and to enable them to do this they have appropriated from Renewals and Depreciation Account the sum of Tls. 30,000.00.

The balance at credit of Profit and Loss Account, after crediting the account with Tls. 6,603.65, carried forward after appropriation of the profit for 1907, with the Tls. 30,000 above alluded to, and deducting the amount of Interim dividend at the rate of 7 per cent. (Tls. 84,000) paid on 27th July last, amounts to Tls. 171,766.23, of which sum the Directors recommend appropriation as follows:—

		Taels.
To pay a final dividend for the year 1908 on 24,000 shares at 6 per cent. (Making 13 per cent. for the year) Tls. 3.00 per share....		72,000.00
To write off for depreciation of Land and Buildings...........	894.13	
To write off for depreciation of Manufacturing and Distributing Plant................	94,246.42	
To write off for depreciation of Furniture...	319.24	
		95,459.79
To carry forward to new account..............		4,306.44

Consumption.—Private consumption increased 25,999,900 c. ft. or 5.77 per cent. The increase in Gas used for Public Lighting has been 658,238 c. ft. or 4.17 per cent.

Gas Engines.—The number of Gas Engines in use is 113, and the increase in Gas used for power amounted to 3,127,400 or 6.21 per cent.

Coal, Etc.—Tons 2829.1.0. more carbonizing material were used than in 1907 and 36,387,900 cubic feet more gas were produced.

Residuals.—The Market for the Company's residual has been satisfactory and, apart from coke, of which a largely increased quantity has been used for manufacturing purposes, there has been considerable increase in profit in all products.

Finance.—Early in the year the Directors decided to provide the funds necessary for the payment of balance of cost of the New Plant, by the issue of further Loan Capital in preference to increasing the Share Capital. To enable this to be done it was necessary to consolidate the whole of the Debenture Issues of the Company, and steps to effect this were taken. It was decided to create a new issue of 6% Debentures of not more than Tls. 1,250,000, of which, in the meantime, Tls. 400,000 should be applied to the redemption of existing issues, and a further amount, not exceeding Tls. 400,000 should be issued as required. Practically all the holders of existing debentures have agreed to accept the new debentures in place of those now held by them, and of the residue a considerable portion has already been placed.

Directorate.—Mr. P. F. Lavers returned to Shanghai in May last, and resumed his seat on the Board, Mr. E. E. Clark having resigned on leaving for England. Mr. Lavers has since resigned owing to his absence from Shanghai, and the Board invited Mr. A. Hide to fill the vacancy. Mr. Hide's appointment requires confirmation at the Ordinary General Meeting. In accordance with the Articles of Association, Mr. J. M. Young retires, but being eligible offers himself for re-election.

Audit.—Mr. H. W. G. Hayter was appointed by the Directors to fill the place of Mr. W. H. Anderson who left Shanghai. Mr. Hayter and Mr. J. E. Bingham offer themselves for election as Auditors.

The annual general meeting of the above Company was held at 10 Peking Road, March 26. There were present: Messrs. E. Jenner Hogg (chairman), J. M. Young, F. Ayscough, A. Hide (Directors), George R. Wingrove (secretary), H. King Hiller (Engineer), F. W. Potter, J. Ambrose, R. E. Wilson, D. A. Darling, E. H. Dunning, A. Hunt, L. Kerr, K. O. Mackenzie, A. Fleet, T. Pemberton, J. Valentine, and J. N. Jameson, representing in all 3,393 shares.

The Chairman proposed that Mr. G. R. Wingrove should act as secretary to the meeting, and asked him to read the notice convening the meeting.

This was done.

The chairman:—Gentlemen, Although we have to approach you this year with a reduced dividend, there is no cause of complaint as to the prosperity of the company. The business has shown a steady increase notwithstanding a very active and keen competition, and in view of the general tendency to economize, owing to the continued depression in trade, as is shown by the fact that, although the number of consumers has largely increased, the average consumption per meter has appreciably fallen off.

With regard to the loss on fittings account, which for the first time appears in our accounts, your Directors have, in order to meet the competition offered by Chinese and others, in selling inferior fittings and mantles at abnormally low prices, endeavored to meet the requirements of our customers at equally low rates, and at the same time supply them with first-class articles. We have also done a large amount of work in the maintenance of our customers' fittings, etc., absolutely free of charge. That the net results of the year are not so good as those of 1907, is to be attributed chiefly to the fact that the plant, which was bearing interest during construction in 1907, and which of course takes time before earning its full return, was all completed early in the year, and such interest for 1908 fell on the ordinary revenue of the Company. Profit on local exchange fell off too, and we have also had considerable legal expenses in connexion with the long-drawn-out arbitration case with the Municipal Council. That the progress of our Company has been highly satisfactory is shown by the fact that there is an increase in our gas sales of 5.85 per cent. Of residuals, tar, pitch and sulphate of ammonia, all show an increase. Coke shows a decrease, but there is a set off against this in the increased quantity used for manufacture.

Our total receipts in working account have been Tls. 666,719.22 against Tls. 643,911.01, and, passing to the other side of the account, our total expenditure has been Tls. 425,526.09 against Tls. 402,343.95. Our carbonizing material has cost us only about 4 per cent more, which, considering the increased price of coal and petroleum, is very satisfactory and testifies to the economy in working that has been achieved. Purifying has again cost less. I need not trouble you with all details involved in the cost of our manufacture and maintenance, but can inform you that such increases as there are, are fully justified in view of the extending business and the upkeep of the Company's plant in first-rate condition. One or two items may be mentioned. Public lamps required an increased expenditure of Tls. 1,328.38 while rates and taxes amounted to Tls. 6,720.38 (besides the special discount on Public Lighting amounting to Tls. 5,925.81), no mean contribution to the Municipal funds.

Profit and Loss you will find shows a net profit of Tls. 219,165.58, after providing for interest on our debentures, Bank overdraft, etc., and other charges applicable to this account.

There is one item in the account which perhaps calls for some short explanation. I allude to the appropriation of the sum of Tls. 30,000 from renewals and depreciation account. Your Directors have, in order to meet competition better, thought it expedient to write a larger amount than usual off certain stocks, with a view to being in a position to supply customers at as nearly cost price as possible. The renewals and depreciation account has been, as you know, built up out of surplus profits of past years to meet any such contingency, and the transfer of the sum named to Profit and Loss account is merely a convenient channel through which to effect the appropriation of the sum to various accounts, and not because we have incurred any specific loss in any one direction.

Turning to the Balance Sheet—Land has only to bear a small amount for filling in, the cost of additional buildings being about Tls. 7,800. On manufacturing plant, the expenditure amounts to Tls. 289,705.61 of which the cost of the new gasholder is the principal item. This expenditure was not, however, incurred during the year, but the bulk of it appeared in last year's balance sheet, under the heading of "plant and buildings in construction." On distributing plant there has been expended a considerable sum to provide for the requirements of consumers. The remaining items on this side of the account speak for themselves. With regard to capital and finance, the balance of the last share issue (Tls. 2,300) was taken up early in the year, bringing the paid-up capital to Tls. 1,200,000. To provide the necessary funds for payment of the balance of cost of extensions, the directors decided on June 18 last to issue further debentures in preference to increasing the share capital, and in order to avoid the creation of a third mortgage, it was decided to pay off existing loans as early as possible and to authorize an issue, as a first charge on the Company's undertaking, to the extent of Tls. 1,250,000, of which Tls. 400,000 should be offered to holders of existing debentures in exchange for those held by them, and a further Tls. 400,000 should be issued as required. At the end of the year, practically all the holders of existing debentures had signified their willingness to accept the new debentures, and a further quantity realized Tls. 24,580.03, which amount appears to the credit of "debenture issue—suspense account." Further debentures are being taken satisfactorily, and there will be no difficulty in placing what may be required. As to the future, we feel confident that we shall obtain an ample share of lighting business. There are no extensions of manufacturing plant contemplated this year and only the normal amount of new work in the distribution department to keep pace with the increasing demand for gas, which with returning prosperity it is hoped will continue to show large development.

It is due to you that I say a few words concerning the Arbitration case with the Municipal Council. In order that the facts might be clearly before you, we have had printed and circulated to shareholders, the full report of what has taken place from the beginning, and including the two decisions of the Court of Consuls, ordering the arbitration we sought for, and finally the decision of Mr. F. S. A. Bourne in the Arbitration itself, which resulted in our favor. In spite of this, I am bound to say that our troubles with the Council are not yet over. As the Chairman of the Council remarked, at the Ratepayers' Meeting on the 17th instant "the amount at stake is not large, but the principle involved is far reaching"—and, though he did not say so, it must be presumed that he recognized that, in all fairness, we are bound to see that a far-reaching principle is guarded and settled in a manner equitable to the Gas Company's shareholders. (Hear! Hear!) We certainly approached the Council in a conciliatory spirit, which, I am sorry to say, has not been reciprocated. It was eminently a question that should have been settled in the very beginning, and if the Council had not hastily granted the permit to the Tramway Company (a point on which stress is laid by the Arbitrator), but had waited until the matter had been arranged, all subsequent troubles would have been avoided. The Arbitrator says:—"I find the issue of a permit to the Tramway Company to have been a wilful act and unnecessary in the public interest."

In 1905, when requested by the Council to concede a discount of 25 per cent on Public Lighting, there was no lack of conciliatory spirit on our part. This is what our Secretary wrote on June 9, 1905.

"Dealing with the Council's proposal as an earnest of future equality of treatment in regard to lighting, and desiring to give practical proof of their wish to meet the Council in a liberal spirit, my Directors are prepared to submit to additional taxation to the extent asked for."

We did not demur, but did what was asked for at once. Gentlemen, have we received, and are we receiving the equality of treatment which was then stipulated for and which was so important a consideration in our negotiations? Have we received the consideration due to us in regard to this dispute and are we receiving equality of treatment in other ways? I think not! It should be recognized that we represent over Tls. 2,000,000 of share and loan capital in which the community has embarked its money, and we contributed last year in rates, taxes, and the special discount on public lighting, no less a sum than Tls. 12,646.19 to the public funds—surely a position that entitles us to reasonable consideration. All we ask for is, a fair field and no favor. I do not think I need add anything more, beyond asking you to read the record of our action as shown in the pamphlet and claiming your support for what we have bone. (Applause.)

I ought before closing my remarks to testify to the excellent work of our staff. All, from highest to lowest, have worked hard and zealously in the interests of the company, and I am sure you will join the Board in tendering them our hearty thanks (Applause). I venture to think that a bonus of 5 per cent to the staff would meet with the approval of the shareholders, and if proposed the resolution will be cordially adopted by the Board. Gentlemen, that is all I have to say, but I shall be glad to answer any questions to the best of my ability.

There being no questions, the following resolutions were put to the meeting and adopted unanimously:

Proposed by the Chairman, seconded by Mr. J. M. Young: that the report and accounts as presented be accepted and passed.

Proposed by the Chairman, seconded by Mr. F. Ayscough: that a final dividend for the year ended December 31, 1908, be paid to the shareholders at the rate of three taels (Tls. 3) per share.

Proposed by the Chairman, seconded by Mr. A. Hide: that the balance at credit of profit and loss account remaining after payment of the dividend declared at this meeting be appropriated as recommended by the Directors in their report for the year 1908.

Proposed by Mr. J. Valentine, seconded by Mr. L. Kerr: that the appointment of Mr. A. Hide as a Director of this company be confirmed.

Proposed by Mr. T. Pemberton, seconded by Mr. J. Ambrose: that Mr. J. M. Young be re-elected as a Director of this company.

Proposed by Mr. E. H. Dunning, seconded by Mr. R. E. Wilson: that Messrs. H. W. G. Hayter and J. E. Bingham be elected as auditors of this company.

Proposed by Mr. A. Fleet, seconded by Mr. J. Ambrose: that a sum not exceeding five per cent. of the annual salaries of the members of the foreign staff of the company be placed at the disposal of the Directors for distribution by them, at their discretion, to the members of the staff.

Mr. Wingrove—I should like, on behalf of the members of the foreign staff to thank you for your appreciation of their work, and for marking your appreciation in this substantial manner.

The meeting then terminated.

SHANGHAI WATERWORKS CO., LTD.—The annual meeting of shareholders in the Shanghai Waterworks Company, Ltd., was held at the office of the Company, No. 69, Kiangse Road, March 24th, when Mr. A. McLeod presided. There were also present Messrs. L. J. Cubitt, W. D. Little, and A. Hide (Directors), J. M. Young, F. B. Pitcairn, D. Forbes, J. N. Jameson, W. A. C. Platt, and A. P. Wood, secretary and engineer-in-chief. The number of shares represented was 9,028.

The notice convening the meeting having been read:

The Chairman said:—Gentlemen—The Report and Accounts for the year, ending December 31, 1908, having been in your possession for some days you will doubtless agree that they be taken as read. In placing before you the accounts and balance sheet for the past year, which the Directors trust you will consider satisfactory, they are pleased to draw attention to the continued progressive nature of the Company's business, which is expanding as the Settlements increase in population and in the various industrial enterprises which are coming into existence in Shanghai. You will observe from a glance at our Working Account that our Revenue for the year amounts to Tls. 510,321.77 which I think I am correct in saying is a record since the Company was first started and is Tls. 51,826.78 more than in 1907. With this increase in our revenue it is satisfactory to note there has been a considerable saving on several items of expenditure and the final result of the year's operations is the transfer from Working Account to the credit of Profit and Loss Account of Tls. 353,255.95 as against Tls. 304,015.25 in 1907. Taking now our Balance Sheet you will notice on the liability side our capital is paid up in full and amounts to £327,000 or 16,350 shares of £20 each: our debenture issue is also completed and stands at Tls. 750,000 as against Tls. 573,500, in last account. The mortgage on B. C. Lot 1265 which stood at Tls. 100,000, in last year's report has been reduced by half and now figures at Tls. 50,000; and it is the intention of the Directors to pay off this amount as soon as the terms of the mortgage permit us to do so. On the assets side of the Balance Sheet you will find that on the extension of works, mains, etc., we have expended Tls. 79,432.25 which is a very much smaller sum than was spent last year when very important additions were made to our works and a considerable purchase of land was made to provide for future extensions. The value of our stock of fittings is reduced by about Tls. 54,000, owing to the fact that some rather extensive work has been undertaken during the past year. You will notice that we had on deposit with the Hongkong & Shanghai Bank, Tls. 180,000, but this will be absorbed by the payment of the final dividend now due. As regards the Profit and Loss Account the balance transferred from the Working Account is Tls. 353,255.95 which, after the payment of the interim dividend of 15*s*, interest on debentures and sundry charges, leaves as available for distribution Tls. 236,589.49 and it is here that we have to deal with the only unsatisfactory feature of our past year's accounts. I refer to the heavy drop that has taken place in sterling Exchange. In 1907 our interim dividend of 15*s* per share on the old shares and 11*s* 3*d* new shares, cost us at Ex. 3- per tael Tls. 71,523.75 and the final dividend 37*s* 6*d* and 30*s* 5*d* on the same shares at exchange 2-6¼ cost Tls. 220,227.93, or a total for the whole year of Tls. 291,751.68. Now I wish to point out how greatly the fall in exchange affects the rate of dividend we have to declare in sterling. Our interim dividend for 1908 of 15*s* @ Ex. 2-5 cost Tls. 101,428.75 and if the final dividend now recommended of 30*s* per share at Ex. 2/3 9-16 for 1908 is passed by you, the cost of same will be Tls. 213,551.01 making the total Tls. 314,979.76 for the year, or Tls. 23,228.08 more than the dividend of 1907, though this latter was 7*s* 6*d* per share above our 1908 dividend. Of course this does not affect shareholders who draw these dividends in Taels, but to the home shareholders, who are paid in sterling, there is a diminution of 7*s* 6*d* per share in this year's dividends and this in spite of our net earnings being larger. You will of course all readily admit this matter of Exchange is one over which the Directors unfortunately have no control.

You will see from the report what the recommendation of the Board is for the appropriation of the amount available for distribution, namely:

To payment of a final dividend of 30*s* per share at Exchange 2/3 9-16..................	Tls. 213,551.01
To carry forward to new account.	Tls. 23,038.48
	Tls. 236,589.49

which is the amount at credit of Profit and Loss Account and we trust this will meet with your approval.

There is one other matter mentioned in the report which it might be as well to refer to, and that is the proposed redemption of the existing debentures of Tls. 750,000 and which consist of 1st and 2nd issues, and to make a new issue of Tls. 1,500,000 in instalments as required, and it is satisfactory to know that nearly all holders of the present issue desire to transfer their interests to the new debentures. Gentlemen, that is, I think, all there is to be said with regard to the report and accounts, but it may interest you to know that the present year is the 25th anniversary of the opening of the Company's works, as it was on September 1, 1883, that water was first supplied to the public of Shanghai, and I think you will all admit that it is satisfactory to learn that this supply has been continued for 25 years without intermission. It may be of interest to shareholders to record the following figures: the number of foreign houses now supplied with water through fittings is 1905 and native houses 40,869, or a total of 42,774 in addition to which the company supplies very large quantities of water to the Municipal Council, various mills and manufactories, etc., etc., for which purpose 2,516½ million gallons of water had to be pumped during the year or a daily average of 6,875,582 gallons, an increase over the previous year of 245 million gallons, equal to 10.8 per cent. From these figures it is quite certain with the exception of Shipping the general depression of trade in Shanghai so much complained about, has not in anyway curtailed the use of water, or the Company's greatest enemy "The abuse and waste of water." With a view to trace this very large increase of 10.8 per cent or 669,071 gallons daily, our Engineer-in-Chief says: "I can only come to the conclusion that it is due to the general expansion of the company's business, as 3,673 additional houses have been supplied with water through fittings during the year; also a larger quantity of water is now being used both by foreign and Chinese consumers." It is quite certain unless consumers give more assistance to the Company than they do at present to check and prevent waste, the time is not far distant when it will be necessary to appeal to the Council to make our water rate by meter, charging for the quantity of water used. To be in a position to meet this constantly increasing demand for water a contract has just been made through our consulting engineers in London with the Glenfield, Kennedy Co., Ltd., for a new pumping engine capable of pumping 300,000 gallons per hour or 7¼ millions in 24 hours. The new Water Tower has been in use during the year with very satisfactory results, and all high buildings can now be supplied with water. The additional filter beds and the other new works mentioned as in progress at the last meeting, have been completed and have proved their usefulness by enabling the largely increased demand for water to be supplied without a stoppage during the year. You will have noticed from the "Municipal Gazette" considerable correspondence has passed between the Municipal Council and the Company with regard to the Company's regulation about the method of water supply to small Chinese houses. The Directors are quite decided that some check must be put on the waste of water caused by placing a tap in each small Chinese house.

You may possibly remember that at our last annual meeting I referred to the retirement through ill-health of Mr. David Reid from the London Committee, and it is with sincere sorrow that the Board have quite recently received news of this gentleman's death. I am confident that the shareholders will concur in recording their great regret at this sad occurrence. We have also, during the past year, lost the services on the London Committee of our old and much esteemed colleagues Mr. E. Iveson and Mr. E. Pettit, who have desired to retire from active participation in the affairs of the Company in London. We all owe these gentlemen a debt of gratitude for their valuable services in the interests of the Company for many years past. We have been fortunate in securing the services of Mr. A Pettit, the son of Mr. E. Pettit, as a member of the London Committee. I will conclude these remarks by again expressing what I have done for many years past, the satisfaction of the Board with the whole of the staff. Before proposing the adoption of the Report and Accounts I shall be pleased to answer any question that you may wish to ask.

There were no questions and the following resolutions were unanimously passed:—

Proposed by the Chairman and seconded by Mr. L. J. Cubitt: That the Report and Accounts for the year ending December 31, 1908, as presented be passed.

Proposed by the Chairman and seconded by Mr. W. D. Little: That a final dividend for the year 1908 of thirty shillings per share be declared and paid at exchange 2*s* 3*d* 9-10ths per tael to shareholders in China.

Proposed by Mr. W. A. C. Platt and seconded by Mr. J. N. Jameson: That Mr. L. J. Cubitt be re-elected a Director of the Company.

Proposed by Mr. W. A. C. Platt and seconded by Mr. J. N. Jameson: That Messrs. Lowe, Bingham and Matthews be elected auditors of the Company.

Proposed by Mr. J. M. Young and seconded by Mr. W. A. C. Platt: That a sum not exceeding ten per cent of the annual salaries of the members of the foreign staff of the Company be placed at the disposal of the Directors for distribution by them at their discretion to the members of the staff—In proposing this resolution Mr. Young paid a tribute to the work of the staff, and Mr. Platt, in seconding the motion, said that all the shareholders were very grateful to the employees for the work that they had done for the shareholders during the year.

Mr. A. P. Wood, in thanking the shareholders for passing this resolution, said that it was a pleasure for the staff to work for shareholders who appreciated their work so much. The members of the staff would continue to do their best for the Company.

This concluded the business of the meeting. The Chairman announced that dividend warrants would be posted next day.

HONGKONG AND KOWLOON WHARF AND GODOWN COMPANY, LTD.—The balance to the credit of profit and loss for the year 1908 was $81,055.67, of which $50,000 was written off lighters, $953.11 off stores and the balance carried forward.

CHINA FIRE INSURANCE COMPANY, LTD.—The balance available was $258,725 out of which a dividend of $6 and a bonus of $2 a share were directed paid and $92,570 added to the special reserve fund.

THE UNION INSURANCE SOCIETY OF CANTON, LIMITED.—An interim dividend of $30 a share to shareholders and 20% to contributors was recommended by the directors and the balance carried forward.

HONGKONG FIRE INSURANCE CO., LTD.—A dividend of $27 a share was authorized at the annual meeting absorbing $216,000 and $114,232 carried to the reserve.

CHINA TRADERS INSURANCE COMPANY, LTD.—An interim dividend of $3 a share absorbing $72,000, a bonus of 20% to contributors absorbing $125,000 were recommended by the board of directors of this company for the year 1908.

THE BRITISH NORTH BORNEO CO.—The directors of the British North Borneo Company announce an issue at par of 649,259 shares of £1 each, leaving for future issue £400,000 of the £2,000,000 capital authorized by the company's deed of settlement. It is explained that the objects in making this issue are: (1) to provide more capital for the further development of the company's territory; (2) to redeem the £461,600 outstanding five per cent. debentures and bonds, interest on which (after redemption) will be available for dividend purposes. From £14,196 in 1901 the surplus of revenue over expenditure has risen to £52,909 in 1907, and the dividend from 2 to 4 per cent., whilst the sum standing to the credit of profit and loss account in the last balance sheet, was £134,201. The prospectus points out that the company has, among other assets, sovereign rights under which it is empowered to frame and enforce laws, to fix customs and other tariffs, and to levy taxes for revenue purposes within the State of North Borneo, territorial rights over the whole of the state, the area of which is estimated at some 31,000 square miles, and a large portion of which is suitable for the cultivation of rubber and high class tobacco. The assets valued in the books at £1,451,000—include the marketable timber fifty million tons, while the company owns a fully equipped metre-gauge railway 125 miles in length, and about 800 miles of telegraph and telephone lines.

CHINA-BORNEO COMPANY, LTD.—A dividend of 10% absorbing $55,200 was authorized paid at the annual meeting of this company covering the year 1908 besides writing off $10,000 depreciation Hongkong Mills, $5,000 off lighters, $2,500 off plant, $1,145.09 off timber concessions and $1,000 off Kadat pier and house property and carrying $15,000 to the Reserve. The sum of $3,000 was also distributed among the members of the company's staff.

LUZON SUGAR REFINING CO., LTD.—The gain on working for the year 1908 was $12,719.42 and the debit to profit and loss $135,893.43.

CHINA SUGAR REFINING COMPANY, LTD.—The sum at the debit of profit and loss account was reduced from $279,371.67 to $5,858.24 during the year 1908 and a dividend of $5 a share was authorized paid out of the equalization of dividend fund.

GEO. FENWICK & COMPANY, LTD.—The accounts at the end of the year 1908 showed a debit balance of $7,421.92.

HONGKONG HOTEL COMPANY, LTD.—Out of the balance to the credit of profit and loss at the end of the half year of $42,461.49 a dividend of 6% was directed paid absorbing $36,000; $10,000 passed to the repairs and renewals account; off furniture and electric plant $8,000 and carried forward the balance of $295.40.

UNION WATERBOAT COMPANY, LTD.—This company paid a dividend of 6% after writing off $13,165 and carried forward $172.51.

SHANGHAI TUG & LIGHTER CO., LTD.—Out of Taels 71,855.99 to the credit of profit and loss at the end of the year 1908 a final dividend of 3.5% making 7% for the year was authorized paid; Taels 15,000 transferred to reserve and Taels 4,355.99 carried forward.

KOCHIEN TRANSPORTATION AND TOW BOAT COMPANY, LTD.—A dividend of 6% was authorized for the year 1908 and $468.86 carried forward after allowing Taels 13,555 for depreciation and transferring Taels 5,000 to the Marine Insurance Fund.

THE YANG-TSZE INSURANCE ASSOCIATION, LTD.—Out of a credit balance available of $743,637.03 a dividend of 5% was authorized absorbing $36,000 and the balance forward was $707,637.

CHINA MUTUAL STEAM NAVIGATION COMPANY, LTD.—Out of £119,312 available for distribution at the end of the year 1908, £67,870 was written off for depreciation, etc., a 5% dividend was recommended and the balance of £14,262 forward.

CENTRAL STORES, LTD.—A dividend of $1.20 on old and 60 cents on new shares were authorized at the last general meeting.

SHANGHAI AND HONGKEW WHARF CO., LTD.—This company paid a dividend of Tls. 6 a share for the year absorbing Tls. 216,000.

ANGLO-GERMAN BREWERY COMPANY, LTD.—The accounts at the end of the year 1908 showed a balance to the credit of profit and loss of $22,388.60 out of which $21,000 were written off for depreciation and the balance carried forward.

YOKOHAMA SPECIE BANK.—After paying a dividend of 12% per annum for the half year ended December 31st, 1908, yen 400,000 were added to reserve and yen 1,140,000 carried forward.

CHARTERED BANK OF INDIA, AUSTRALIA AND CHINA.—The directors recommended the payment of dividend at the rate of 15% per annum for the half year ended December 31st, 1908; to write off £25,000 on bank premises;

to place £50,000 in the reserve which now stands at £1,575,000 and to carry forward £134,000 besides paying a bonus of 10% to the staff.

Helm Bros., Ltd.—A final dividend of 10% making 17.5% for the year absorbed yen 24,995.55 and a balance of yen 6,395.55 was carried forward.

Imperial Hotel, Ltd. (Tientsin).—This company paid a dividend of 8% and carried forward Tls. 1,290.

Peking Electric Company, Ltd.—Out of Tls. 13,781.08 available for distribution a dividend of 2% was declared and after writing off installation and paying auditors' fees a balance of Tls. 1,613.07 was carried forward.

Royal Johore Tin Mining Company, Ltd.—A dividend of 3% was declared and $579.23 carried forward.

Sipiau Tin Company, Ltd.—A dividend of 3% was declared and $777.68 carried forward for the half year ended December 31st, 1908.

Karangan Hydraulic Tin Mining Company, Ltd.—The profit for the half year ended December 31st amounted to $2,400 which sum was carried forward.

Mercantile Bank of India.—A dividend of 6% per annum has been recommended together with an addition to the reserve fund of £24,000, an addition of £2,000 to the officers' pension fund and balance forward £25,300.

Serendah Tin Mining Company, Ltd.—A final dividend of 2.5% making 10% for the year was paid and a balance of $5,418.54 carried forward.

Fraser & Neave, Ltd.—The directors recommended the following disposition of the sum of $84,105.33 available for distribution:

(*a*) That a dividend of 15 per cent. and a bonus of 2½ per cent. or, together, 17½ per cent. on the capital of the Company, or $8.75 per share, be paid, absorbing $39,375.

(*b*) That a sum of $17,500 be added to General Reserve bringing same up to $150,000.

(*c*) That the balance of $27,230.33 be carried forward to a new Profit and Loss Account.

Balgownie Rubber Estates, Ltd.—This company declared an interim dividend of $1.25 payable March 15.

The Paknam Railway Company, Ltd.—The net profit for the year amounted to Ticals 56,650.35 out of which a dividend of 8% was declared and Ticals 24,350.35 carried forward.

Bangkok Manufacturing Co., Ltd.—A dividend of 5% was declared for the half year ended December 31st, Ticals 10,000 added to the reserve, and Ticals 5,376 forward.

Siam Steam Packet Company, Ltd.—The following disposition was made of the profits for the year ended December 31st, 1908:

	Ticals
Transfer to Dividend Account 8%...	10,500.00
Transfer to Dividend Account New Issue........................	1,546.66
Transfer Goodwill Account.........	2,400.00
Remuneration to Directors.........	2,500.00
Carried forward to 1909...........	608.99
	17,555.65

Menam Motor Boat Co., Ltd.—After allowing Ticals 20,000 for depreciation the balance to the credit of profit and loss of Ticals 3,653.71 was carried forward.

Bangkok Dock Company, Ltd.—The following distribution of profit was recommended by the directors:

	Ticals
Transfer to Dividend Account 5%...	40,000.00
Transfer to Dividend Account New Issue........................	500.00
Remuneration to Directors.........	6,800.00
Carry forward to 1909...........	8,872.58
	56,172.58

CONTRACTING NEWS

*City of Manila.—Bids will be received to July 1st for the furnishing of approximately 160 gate valves, 20 air valves, and 325 fire hydrants by the Secretary of the Municipal Board, Manila.

*City of Manila.—Bids will be received to June 1st for the furnishing of 7,000 tons of cast iron pipe hub and spigot pattern; about 56 tons of 20-inch flexible joint and flanged cast iron pipe; two tons flanged cast iron pipe and about 200 tons of cast iron specials, by the Secretary of the Municipal Board, Manila, or address Chief of Bureau Insular Affairs, Washington.

Imperial Tientsin-Pukow Railway.—Tenders invited, to be opened June 21st, 1909, by the Managing Director at Nanking, China, for the furnishing free of all charge at the wharf at Pukow, not later than December 31st, 1909, Steel Plate Girders as follows:

26 Spans of Deck Girders, 12 feet clear span; 12 Spans of Deck Girders, 20 feet clear span; 60 Spans of Deck Girders, 30 feet clear span; 12 Spans of Deck Girders, 50 feet clear span; 2 Spans of Through Girders, 50 feet clear span; 3 Spans of Deck Girders, 75 feet clear span; 3 Spans of Through Girders, 75 feet clear span.

Quotations in sterling and bids must be presented on or before June 20, 1909.

Imperial Tientsin-Pukow Railway.—Steel plate girders to be delivered on wharf at Pukow during the month of May, 1910. Quotations in sterling and received by Managing Director at Nanking not later than June 20th, 1909:

12 Spans of Deck Girders, 12 feet clear span; 8 Spans of Deck Girders, 20 feet clear span; 150 Spans of Deck Girders, 30 feet clear span; 30 Spans of Deck Girders, 50 feet clear span; 8 Spans of Deck Girders, 75 feet clear span.

Imperial-Tientsin-Pukow Railway.—Rolling Stock for Southern Section. To be delivered at wharf, Pukow, in January, 1910. Tenders addressed Managing Director, Nanking, to be opened June 25, 1909.

For 100 High Sided Wagons (30 tons); 100 Low Sided Wagons (30 tons); 50 Covered Goods Wagons (20 tons).

Also eight tender locomotives 2-6-0 type, cylinders 19″×24″. Coupled Wheel 5′-0″ diameter. Working pressure 180 lbs. With six wheel-tenders.

The locomotives and tenders to be delivered on the railway wharf at Pukow; four locomotives to be delivered during the month of April 1910, and the remaining four during the month of August 1910.

Tenders should be addressed to the Managing Director, Tientsin-Pukow Railway, Southern Section, Nanking. They will be opened at 10 a.m. on Tuesday, the 29th June, 1909.

Chief Quartermaster, U. S. Army.—100,000 pounds of rope. Bids opened April 30th, 1909.

*Chief Quartermaster, U. S. Army.—One sea-going single-screw tug-boat. Bids opened June 1st, 1909. Address, Philippines Division, Office Chief Quartermaster, Manila, P. I.

Philippine Government.—40,000 barrels cement; bids opened May 8th, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

Philippine Government.—40,000 *metric* tons of coal; bids opened May 17, 1909. Address E. G. Shields, Purchasing Agent, Manila, P. I.

Bids Opened.—March 20, 1909, Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Lumber to be delivered at Pukow, not later than August 31, 1909. One ship load of Douglas Fir, not exceeding 3,000,000 feet rough and worked with 250,000 laths.

March 19, 1909.—Managing Director, Imperial Chinese Tientsin-Pukow Railway, Nanking. Sleepers, crossing timbers and bridge ties as follows:

100,000 Wooden Sleepers, each 8 feet by 9 inches by 5 inches; 800 Crossing Timbers, each 9 feet by 9 inches by 5 inches; 300 Crossing Timber, each 10 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 11 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 12 feet by 9 inches by 5 inches; 300 Crossing Timbers, each 13 feet by 9 inches by 5 inches; 400 Crossing Timbers, each 14 feet by 9 inches by 5 inches; 200 Crossing Timbers, each 17 feet by 9 inches by 5 inches; 3,000 Bridge Ties, each 10 feet by 9 inches by 5 inches.

TO CONTRACTORS

OFFICE OF THE MUNICIPAL BOARD.—Manila, P. I., January 20, 1909.—Sealed Proposals or bids will be received by the Secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., June 1, 1909, for furnishing cast-iron pipe and specials for the City of Manila, Philippine Islands.

The total amount to be furnished will be approximately seven thousand (7,000) tons of cast-iron pipe, hub and spigot pattern; about fifty-six (56) tons of 20 inch flexible joint and flange cast-iron pipe; about two (2) tons of flanged cast-iron pipe, and about two hundred (200) tons of cast-iron specials.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for ten thousand dollars ($10,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. Fischer,
Secretary of the Municipal Board.

J. F. Case,
Chief Engineer, Department of Sewer and Waterworks Construction.

ADVERTISEMENT

Office of the Municipal Board.—Manila, P. I., February 15, 1909.

Sealed bids or proposals will be received by the secretary of the Municipal Board, Manila, P. I., until 12 o'clock m., July 1, 1909, for furnishing gate valves, air valves and fire hydrants for the city of Manila, Philippine Islands.

The total amount to be furnished will be approximately one hundred and sitxty (160) gate valves, twenty (20) air valves, and three hundred and twenty-five (325) fire hydrants.

Specifications, general plans, and blank forms of proposal may be obtained at the office of the secretary of the Municipal Board, Manila, P. I., or from the Chief of the Bureau of Insular Affairs, Washington, D. C.

Each proposal must be accompanied by a certified check for three thousand dollars ($3,000), United States currency, drawn on a local bank; or a bond in like amount, signed by a fidelity insurance company, authorized to give such bond in the Philippine Islands, as a guaranty that the bidder, if awarded the contract, will, after due notification, promptly enter into contract and furnish an acceptable bond in the sum of twenty (20) per cent of the sum total of the contract price for the faithful performance of the work.

The right is reserved to reject any or all bids.

H. L. Fischer,
Secretary of the Municipal Board.

J. P. Case,
Chief Engineer, Department of Sewer and Waterworks Construction.

**Advertised in the* Far Eastern Review.

PROPOSALS FOR FURNISHING TOWBOAT.—Headquarters Philippines Division, Office of Chief Quartermaster, Manila, P. I., April 15th, 1909. Sealed proposals, in triplicate, subject to the usual conditions, for furnishing and delivering to the Quartermaster's Department, U. S. Army, Manila, P. I., one seagoing, single screw, towboat, will be received here until 10:00 a. m., June 1st, 1909, and then opened. Certified check in ten per cent (10%) of amount of bid must accompany proposals. Blank forms and full information furnished upon application to this office. Envelopes containing proposals should be endorsed "Proposals for furnishing towboat, to be opened at 10:00 A. M., June 1st, 1909," and addressed to the Chief Quartermaster, Philippines Division, Manila, P. I.

PHILIPPINE LEAF TOBACCO TO AUSTRALIA

The Walter E. Olsen & Co., Inc., made a shipment of 83,688 pounds of leaf tobacco to the order of the States Tobacco Company of Melbourne and Sydney together with 500,000 José Rizal and Fighting Bob cigars this month and there is promise of marked extension of trade in this direction.

MINING MACHINERY FOR THE SAN MAURICIO

The complete equipment for the installation of a 20 stamp mill in the San Mauricio mine, Camarines, arrived at Manila and will be shipped south this month. The shipment comprised 353 packages, in all about 130 tons, and is the largest shipment of mining machinery ever brought to the Philippines. It includes a complete mill of 20 stamps, concentrators, pacifiers, an electric light plant complete and power machinery. President Heise states that the installation will be complete and the plant operating by the end of 1909.

PHILIPPINE GOLD OUTPUT

The Paracale Gold Dredging Company report the saving of 644 ounces during the month of March.

The Benguet Consolidated Mining Co. reports a saving of 235 ounces during the month of March.

STRAITS SETTLEMENTS TRADE

The following is a comparative statement of the Straits Settlements imports and exports for 1907 and 1908:

	1908.	1907.
Singapore..........	$45,137,294	$45,483,886
Penang............	$21,980,145	19,700,804
Malacca............	1,050,469	918,256
Total........	$68,167,908	$66,102,946
Total in Sterling....	£7,952,924	£7,712,010

Increase in Dollars—$2,064,962.
Increase in Sterling—£240,914.

The imports of merchandise into the three Settlements during the last quarter of the respective years were as follows:

	1908	1907.
Singapore..........	$52,868,783	$57,360,470
Penang............	24,220,413	20,584,505
Malacca............	1,085,252	1,228,365
Total........	$78,174,448	$78,173,340
Total in Sterling....	£9,120,351	£9,120,223

Increase in Dollars—1,108.
Increase in Sterling—£128.

FAR EASTERN ENGINEERING, CONSTRUCTION, COMMERCIAL AND FINANCIAL NEWS.

ELECTRIC RAILWAYS, LIGHT, POWER, TELEGRAPHS, TELEPHONES, AIRSHIPS, ETC.

KIRIN ELECTRIC LIGHT PLANT.—This company has been serving light to customers for some time, and it is expected that the whole system will be in operation in a few months.

WIRELESS ON AMERICAN RAILWAYS.—A telegraphic report from New York announces that wireless telegraphy has been successfully utilized on a train running between Buffalo and Chicago.

U. S. TRANSPORT WIRELESS.—The transport *Sheridan* reports having received messages covering a distance of 3,000 miles and on her last voyage to Nagasaki kept in touch all the distance. All the transports are being equipped.

ELECTRIC CRANES FOR AUKLAND.—The contract for supplying cranes to the harbor board has been let to Messrs. John Chambers & Sons, Ltd., Aukland, agents for Messrs. Babcock & Wilcox of London and Glasgow. The price was £16,421. f. o. b. at an English port.

CHINESE TELEGRAPH WIRE FACTORY.—It has been announced that Peking is negotiating with an American wire manufacturer for the establishment of a wire factory at some point in China, the capital to be supplied jointly by the government and the American capitalist.

PORT ARTHUR ELECTRIC RAILWAY.—The proposed tramway to connect Old and New Town, Port Arthur, is again being discussed and it is said that the promoters have secured the necessary capital to buy the equipment and lay the track. It is proposed that the power be secured from the electric light plant there.

HAWTHORN ELECTRIC LIGHTING.—The report on the cost of lighting the town estimates the cost at £94,650, says *Hardware and Machine*, and an alternate proposal to secure current from the Melbourne plant is being considered. The output of the Melbourne plant grew from 3,500,000 units in 1902 to 7,500,000 in 1908.

ELECTRIC LIGHT FOR SANDAKAN.—The British Trading Company of London has secured a concession to install a system of electric lighting in the city, and the contract with the British North Borneo Government requires that the plant begin operating within 24 months from December 8th, 1908. The charge will be 30 cents per unit to the consumer.

WIRELESS FOR CHINA.—The difficulty of establishing communication by telegraph across the deserts that intervene between Peking and the extreme North-west of the empire is to be surmounted by the installation of an extensive wireless system under the control of the Chinese government. The Board of Posts and Communications are now making investigations as to the best systems to adopt.

JAPANESE-AMERICAN ELECTRIC APPARATUS MANUFACTURING COMPANY.—More information published in the Japanese press discloses the fact that the Shibaura Works managed by the Mitsui Company and the Tokyo Electric Company will be amalgamated and with the General Electric will form a company with four million capital controlled by the American capitalists. The General Electric owns a large tract of land at Kawasaki, and it is said that a large factory will be established there.

RAILWAYS AND RAILWAY SUPPLIES

THE KASHING RAILWAY.—The work on this railway is progressing favorably and trains are running into Kashing.

NANKING-WUHU LINE.—Viceroy Tuan Fang has completed arrangements to construct a line connecting these two points in Kiangsu.

RAILWAY WORKSHOPS AT SHAHOKOU.—The site of the South Manchuria shops has been chosen and materials are now on the ground.

YUNNAN RAILWAY CONSTRUCTION. The construction on this line has reached Mongtze, a distance in all of 500 miles from Haiphong.

IPOH RAILWAY STATION.—A new railway station is to be constructed and a branch line running from Ipoh to Gopeng is being considered.

ANTUNG-MUKDEN RAILWAY.—The final survey of this line with a view to shortening the line and increase it to standard gauge is now under way.

CANTON-HANKOW CONSTRUCTION.—This work has reached North River and the line is being operated beyond Yuntam about fifty miles from Canton.

PINGSHIANG RAILWAY EXTENSION.—The extension of the Canton-Hankow to the mines will be built by the Canton-Hankow and not as planned by the mines.

CHINESE EASTERN RAILWAY.—It is reported that the Russians are carrying on negotiations at Peking for the sale of their rights in this railway, to the Chinese government.

TSINANFU-LOKOW LINE.—This temporary line on the Hoangho between these two points will be completed this month and will be operated until the completion of the Tientsin-Pukow.

NEW CHINESE RAILWAY COLLEGE.—The Viceroy of Chihli has recommended the establishment of a railway college at Tientsin. It will have a three year course with classes in German, French, and Russian.

GEMAS-PAHANG EXTENSION.—The construction of the line from Gemas junction to Kuala Semantan in Pahang is being pushed rapidly. Eighteen miles of steel have been laid and the ballasting is well under way.

NEW SHENSHI RAILWAYS.—The officials of Shensi are urging the building of a railway from Hsian to Tungkwan, another from Hsian to Langchow, besides the extension from Tungkwan to open up the coal and oil districts.

F. M. S. RAILWAY APPRENTICES.—This railway system has inaugurated a plan whereby apprentices are taken on without pay until trained and there is a vacancy in the regular paid force. The result has been ten applications for every opening.

YENTAI BRANCH LINE.—This line, which runs from the mines to the station at Yentai, is being widened to standard gauge and the work is expected completed in August. It is also the intention to widen all the sidings connected with the line as quickly as possible.

NORTHERN AND WESTERN CHINESE RAILWAYS.—The construction of a line from Kalgan to Kulun and another from Kalgan to Suiyuen projected some time ago, is being considered at Peking at the present time and it is very probable that means will be realized to finance the proposition.

ANGLO-SIAMESE RAILWAY.—According to the terms of the treaty providing for the withdrawal of Siam from the suzerainty of Kelantan, Tringanu and Kedah, the Federated Malay States have agreed to provide the sum of £4,000,000 to go towards financing the construction of a railway from Bangkok to the new Malayan boundary.

YALU RAILWAY BRIDGE.—With the going out of the ice in the spring the construction of the big railway bridge will begin. This construction will be the most important in connection with Korean and Japanese railways. When completed it will inaugurate through traffic from Fusan to Mukden. It will be 3,182 feet long and cost $4,000,000.

SZECHUEN-TIBET RAILWAY.—British capitalists are interested in a proposal to construct this line starting from Tibet and providing for connections with the Indian system. So far Peking has not considered the proposition with much favor. It is the purpose of the Chinese to begin construction as soon as the Hankow-Szechuen line reaches the latter point.

CHINESE RAILWAY RETURNS.—From the different reports submitted it is gathered that during the year 1908 the Peking-Fengtien Railway made a profit of Tls. 3,300,000, the Peking-Hankow Tls. 3,000,000 and the Ping-hsiang-Liling Tls. 100,000 and that the Taokow-Tsinghwa, Chengting-Taiyuen and Shanghai-Nanking Railway, lost Tls. 300,000, Tls. 600,000 and Tls. 900,000 respectively.

CHEFOO-WEIH-HSIEN RAILWAY.—The latest advices have the route of this line along the coast line to Tungchow, says the *Peking & Tientsin Times*.

"The first section will be from Chefoo to Fushan; the second, from Fushan to Hsintien; the third, from Hsintien to Wushilipu; the fourth and remaining section, from Wushilipu to Tungchow. From Tungchow, the line will extend in a South Easterly direction as far as Huanghsien. The line will run from Huanghsien to the terminus Weihhsien, via Laichowfu and Chungyi."

JAPANESE PRIVATE RAILWAYS.—There is a total of 450 miles of railways conducted by private enterprise in Japan, the official list of which follows:

Tobu Railway—between Tokyo and Ashikaga—56 mils. 34;
Chugoku Railway—between Okayama and Tsuyama—48 mils. 60;
Nankai Railway—between Osaka and Wakayama—41 mils. 43;
Narita Railway—between Sawara and Abiko—33 mils. 02;
Iyo Railway—between Takahama and Yokogawara (Shikoku)—27 mils.;
Omi Railway—between Kisho and Hikone—26 mils.;
Yokohama Railway—between Higashi Kanagawa and Hachioji—25 mils. 35;
Chuyetsu Railway—between Jyohata and Takaoka—22 mils. 05;
Jyoha Railway—between Takasaki and Shimonita—21 mils.;
Kawagoye Railway—between Kawagoye and Kokubunji—18 mils. 05;
Toyokawa Railway—between Nagashino and Yoshida—17 mils. 04;
Bisai Railway—between Shin-ichinomiya and Yatomi—15 mils. 06;
Hakata Bay Railway—bet weenN ishitozaki and Takami (Kyushu)—15 mils. 04;
Jyobu Railway—between Kumagai and Namikure—14 mils. 02;

O-me Railway—between Tachikawa and Himukiwada—13 mils.;
Mito Railway—between Mito and Ota—11 mils.;
Izu Railway—between Mishima and O-hito—10 mils. 06;
Kanan Railway—between Kashiwabara and Nagano—10 mils. 03;
Sano Railway—between Koshina and Kuzufu—9 mils. 07;
Ryugasaki Railway—between Sanuki and Ryugasaki—3 mils. 08.

PUBLIC WORKS, DOCKS, WHARVES, ETC.

Yingkow Waterworks.—The entire construction of this system is reported to be completed and in May it will be put in operation.

Dredging Chemulpo.—Extensive improvements in this harbor is under way. The harbor is to be deepened and wharf facilities will be added.

Szechuen Road Bridge.—The municipal engineer of Shanghai has recommended the expenditure of Tls. 270,000 in replacing the old bridge.

Yokohama Public Improvements.—The sum of yen 124,000 will be expended in civil engineering works, reconstruction of the city office and in harbor improvements.

Kampong Panchor Jetty.—Messrs. Riley, Hargreaves & Co. have secured the contract for the construction of the concrete jetty at Kampong Panchor, Palau Jerejak, Penang.

Chinese New Ice Free Port.—Peking is preparing to open the harbor in Lien Shan, Gulf of Pechili, about 200 miles north of Shanhaikwan, and proposes making it a rival for the Japanese port of Dalny.

Sydney Street Paving.—This city will expend the sum of £90,000 in paving and repaving a number of streets with wood blocks. The estimated cost of this work is placed at 17 shillings a square yard.

Saghalien Port.—The Japanese government has decided to open the port of Odomari on the southern coast of Saghalien to international trade and the development of better harbor facilities has been authorized.

Corregidor Island Fortifications.—The sum of $350,000 has been appropriated by Congress for the construction of barracks on Corregidor Island and $250,000 for forts on the island and in the entrance of Manila Bay.

Chinese Naval Ports.—The sites available for naval bases are Taku, Chefoo, Taohua Island and Yungching Bay. Weihaiwei has also been approved and an effort will be made to have it retroceded by the British. It is not known yet which one of these sites will be selected for the initial naval station.

Cebu Harbor Improvements.—Statistics have been submitted demonstrating that the expenditure of ₱1,000,000 in extending the harbor has resulted in a saving to the port of ₱250,000 in one year in the cost of handling cargo and it is proposed to further deepen the harbor from 23 to 27 feet and to make a further extension of the sea wall on the north side of the port.

Dairen Harbor Receipts.—The annual receipts of Tairen (Dalny) Harbor for last year are as follows:

	Yen.
January	60,725.37
February	126,136.63
March	101,936.03
April	61,656.11
May	63,656.11
June	61,211.75
July	36,957.45
August	57,404.11
September	36,813.21
October	62,081.93
November	41,867.24
December	140,103.71
Total amount	850,443.78
Average sum	70,869.01

SHIPBUILDING, GENERAL MARINE AND FISHERIES

Tonnage at Dairen.—Fo rthe year 1908 538 steamers called at this port with an aggregate tonnage of 989,244 tons.

Raising the Kaloma. The Tanjong Pagar Dock Board used three 15-inch pumps in the salving of this steamer off Passir Panjang.

Oil Tank Lighter Launched.—A twin screw oil tank lighter was recently launched from the works of Messrs. W. S. Bailey of Hongkong.

New Japanese Torpedo Boat.—A new invention reported from Kure is designed to work as a combination of a fish torpedo and a submarine torpedoer. It is reported to be navigable for 24 hours and to have a speed of 30 knots.

Chinese Siam Navigation Company.—This company has chartered six Norwegian boats, and two of them were started on the run to Hongkong from Bangkok this month. Two more are expected to start on the run May 1st and the balance later.

Cod Fisheries in Gulf of Pechili.—The report from the coast of Pechili is to the effect that the catch of cod this season has been unusual and it is the purpose of the Marine Products Association of Dairen to prepare the product for shipment to foreign markets.

Volunteer Steamer Umegaka Launched.—The launching of this new steamer took place from the Mitsubishi Shipbuilding and Engine Works Nagasaki, on March 27th. It will be placed on the Fusan-Shimonoseki Ferry service. She is described as follows:

Hull.—Steel.
Length.—335 ft.
Breadth.—43 ft.
Depth.—22 ft. 9 inches.
Gross tonnage.—3,100 tons.
Drafts.—16 ft.
Displacement.—3,600 tons.
Actual horse power.—8,500.
Speed.—21 knots.
Engine.—Parson's triple system steam turbine.
Boilers (Miyabara system water tube).—4.

MINES, MINERALS, AND THE METAL TRADE

Java Gold Output.—For February the Ketahoen mine produced 1950 oz. of gold and 2646 oz. of silver.

Hainan Tin Mines.—Reports from Hainan are to the effect that the company developing this property is assured of success.

South Sumatra Mining.—A company has been organized to work valuable deposits of silver, gold, and copper in the Lampeng district.

Saghalien Oil Wells.—A German company has secured a concession to operate on the east coast of Saghalien where good oil has been found in abundance at 120 feet.

Kaiping Coal Fields.—An effort is being made to develop these valuable deposits under the direction of the Chinese government. An expert from Germany has been engaged.

New Dredges for Tonkah.—The Tonkah Harbor Tin Dredging Co. has ordered two large dredges from Holland. These dredges will have a capacity for raising the tin from a depth of 40 feet.

Japanese Mineral Output.—For the year 1908 minerals to the value of yen 14,000,000 were won from the different mines of the country, a falling off from the previous year of over yen 3,500,000.

Manchurian Gold Deposits.—A report from Dalny is to the effect that Belgian prospectors have located valuable gold deposits near Hailungchen. They will probably be worked by Chinese officials.

Standard Oil Product in Japan.—The Otaru Kerosine Oil Company has imported 70,000 cases of the Chester brand of American oil and will put it on the Japanese market at a lower price than the Japanese companies.

Russians to Use Fushun Coal.—The Chinese Eastern Railway has placed a small order for Fushun coal with the Manchuria Railway and will probably secure its supply entirely from that source if it be found satisfactory.

Gwendollin Mining Concession.—This gold mining concession, owned by Messrs. Jardine Matheson & Co. in Korea, is being developed with success. Five stamp mills are being operated with all the amalgamating and gold saving devices.

Yalu Copper Deposits.—A company has been formed of merchants of Mukden and Kirin to develop copper deposits in the upper reaches of the Yalu and to build a light railway. Connection with Antung would be made by river steamers.

Kyushu's New Coal Pit.—The Kyushu Steamship Company has announced that the Yasakito coal deposits contain over 180,000,000 tons of coal. Preparations are being made to have the plant equipped to mine 2,000 tons a day by 1911.

Italian Mining Company in Korea.—A mining concession has been granted an Italian company in the district of Huchang in North Pyongan, Korea. Reports from Seoul are to the effect that some valuable deposits have been developed recently.

Fushun Coal Invasion.—The Korean railways have decided to use Fushun coal and the Kyushu coal mines are already feeling the effect of the competition. There is said to be a surplus of Kyushu coal piled up amounting to over a million tons. It is not improbable that the Japanese Imperial Railways will decide to use the Fushun product.

FINANCIAL AND MISCELLANEOUS

Japan's Grand Exposition.—The sum available for this enterprise is to be increased to yen 20,000,000.

New Burma Oil Gusher.—Oil has been struck in the oil fields of Yenangyaung field at a depth of 1350 feet.

Japanese Tea.—America and Canada purchased 33,846,062 pounds of tea from Japan during the year 1908.

Formosan Tea.—The total export of tea for 1908 was 12,943,000 pounds upon which was realized yen 4,117,948.

Seattle Exhibition.—The Japanese government has appropriated yen 70,000 to be used in participating in the exposition.

Indo-China Estimates.—The council of the colony has passed the estimates for 1909 which will represent an outlay of $34,500,000.

Johore Rubber Lands Company.—This is a new company organized in London with a capital of £300,000. It will control 47,500 acres of land.

Anglo-Japan Exhibition.—The expenditure of yen 1,800,000 for carrying out the proposed exhibition has been approved at Tokyo in committee.

Formosan Sugar Subsidies.—Subsidies to the amount of yen. 1,500,000 are being proposed to encourage the sugar manufacturers in Formosa.

Formosan Paper Mill.—The Mitsui Bishi firm intends installing a paper mill representing a capital of yen, 1,000,000 at Toroku. Bamboo will be used in the manufacture.

Sourabaya Fiber Congress.—The Netherlands India Planting Syndicate is interested in promoting a congress of those interested. to be held at Sourabaya in October, 1910.

Manchurian Exploration Company, Ltd.—This company was registered in February in London and has for its object the acquiring of grants, concessions, and other privileges in Manchuria, Siberia, and to carry on a general mining and development business.

Franco-Japanese Bank.—A scheme is afoot to establish a large banking corporation on foreign and Japanese joint enterprise with a capital of 20,000,000 yen. It seems that a syndicate of French capitalists recently made overtures to Mr. I. Morimura, Head of the Morimura Bank, to jointly launch a banking concern on an extensive scale in Japan, in company with Japanese capitalists.

Japanese Subsidies.—The following statement of subsidies has been given out:—

The *Tenyo Maru* (San Francisco line)	624,148.20
The *Chiyo Maru* (San Francisco line)	624,148.20
America Maru (South American and San Francisco line)	218.694.58
Nippon Maru (South American line)	253,340.21
Hongkong Maru	253,258.20
Total	1,973,589.39

Korean Trade for 1908.—The following is a statement of Korean exports and imports for the past yar:

	Imports. Yen	Exports. Yen
Provisions	4,745,370	10,892,551
Cloth, etc	13,958,038	—
Furniture, etc	5,021,217	—
Raw materials	3,899,404	1,484,140
Half-manufactured articles	5,288,372	140,428
Metal goods	4,528,612	102,920
Miscellaneous	3,604,849	844,337
Total	41,050,072	14,109,425

Japanese Scale of Wages.—The comparison of rates per diem between 1897 and 1907 is as follows:—

	1897 sen.	1907 sen.
Farm labourer (men)	28.2	36.0
Farm labourer (women)	15.9	22.0
Girl spinner	18.3	27.0
Gardener	40,4	62.0
Weaver (men)	22.5	42.0
Weaver (women)	15.0	24.0
Carpenter	43.4	75.0
Plasterer	43.6	76.0
Mason	47.4	87.0
Sawyer	43.0	73.0
Day labourer	29.0	49.0

Japan's Industrial Investment.—The total sum of capital invested in various business enterprises during February stands at 15,323,130 yen including 4,750,000 yen of new enterprise and 10,573,130 yen of business extension. The figure is divided as follows:—

	yen.
New Enterprise:	
Banking business	500,000
Electric business	100,000
Mining industry	200,000
Marine Product industry	100,000
Railway and light railway	600,000
Manufacturing industry	300,000
Insurance business	500,000
Commercial and others	2,450,000
Extension:	
Banking business	1,923,130
Manufacturing industry	8,150.000
Foreign capital:	
Spinning industry	500,000

THE SHANGHAI-NANKING RAILWAY

The returns of this railway for the week ending January 16, 1909, show an excess in earnings and numbers of passengers carried over all previous records, says the *North China Daily News*. When the line was first opened, and the more populous and busy parts of the country were connected, such as Shanghai and Soochow, and only 114 miles of railway were opened, the earnings per mile per week were $155.70, and the numbers of the passengers 387 on the average. Later on when 159 miles were opened, the earnings per mile per week and the number of passengers carried remained about the same, the figures being $154.67 and $87 passengers. The history of all railways is that the extension of railway communication, as railway statistics show, lowers the number of passengers carried and the earnings per mile, because populous cities are not found throughout the length, but on this railway the opposite is taking place, for now that 203 miles, or the whole line, has been opened, the week ending January 16, 1909, has eclipsed all previous records, and the number of passengers carried during that week has amounted to 79,089, earning $34,288, or an average of 390 passengers a mile, and $168.68. These figures are better than any railway of the same length can adduce anywhere in the East, and distinctly show that the future of railways in China, provided due attention is paid to the comfort of passengers, and to the civility of the railway servants, is more than assured. On this railway civility to the public and the prevention of the loss of "face" to Chinese passengers by Chinese clerks and ticket collectors domineering over them has been insisted upon, and nothing has received stronger treatment than any complaints to the contrary. This policy bears its fruit in giving the railway much the best of the competition with the steam-launches and the creek.

The figures given above are higher even than the week in which the great Kiangwan festival takes place, which generally inflates the earnings especially, and there is no doubt that this week of the China New Year in which the trains have been very full, in fact more full than comfortable, will beat even that total. The record is one that Mr. A. W. U. Pope, the general manager, and the members of the staff may deservedly look back upon with feelings of satisfaction. Much credit is also due to Taotai C. L. Wong, the Managing Director, and a former student in America, to whose tactful influence is due the absence of all friction in the affairs of the railway.

*LONDON, ENGLAND, METAL MARKET

March 1909.

COPPER	£ s. d.	£ s. d.
*Tough cake and Ingot	60 10 0	61 0 0
*Best Selected	61 0 0	61 10 0
*Electrolytic	61 0 0	61 0 0
*Sheets and sheathing	71 0 0	—
*Flat bottoms	74 0 0	—
STANDARD †Cash	56 5 0	56 10 0
STANDARD †Three Months	§57 2 6	§57 5 0
*Copper tubes, seamless per lb.	0 0 9	—
*Lake	61 10 0	62 0 0

* Less 3½ per cent. † Net.

§ In last week's issue the quotation for Copper, Standard, three months, should have read, as in the text, £56 12s. 6d.—£56 15s. 0d.

ALLOYS.		
BRASS: Wire	0 0 6¼	—
,, Tubes (solid drawn)	0 0 7¼	—
,, Sheets	0 0 6¾	—
TIN.		
English ingots, f. o. b.	131 0 0	132 0 0
,, bars	132 0 0	133 0 0
,, refined	133 0 0	134 0 0
Straits... Cash	130 0 0	130 5 0
Straits... Three months	131 10 0	131 15 0
Australian spot	130 0 0	130 10 0
Banka (in Holland) Cash	131 13 9	—
Banka (in Holland) Three months	132 5 0	—
LEAD.		
Spanish or soft foreign	13 6 3	13 8 9
English pig, common	13 10 0	13 15 0
,, L. B.	14 2 6	—
,, sheet and bar lead	14 12 6	—
,, pipe	15 2 6	—
,, red	16 5 0	—
,, white	18 0 0	—
,, patent shot	16 12 6	—
SPELTER.		
Silesian ordinary brands	21 12 6	21 15 0
,, special brands	22 0 0	22 5 0
English Swansea	22 2 6	22 12 6
Sheet zinc	24 15 0	—
ANTIMONY.		
Antimony	29 0 0	31 0 0
,, Crude	13 10 0	14 10 0
,, Ore (basis 50%)	7 10 0	8 10 0
QUICKSILVER.		
Flasks, 75 lbs. warrants	8 7 6	—
MANGANESE.		
Ore, c.i.f., U. K. ports.	Per unit.*	Per unit.*
1st quality, 50 per cent. and upwards	0 0 9¼	—
2nd quality, 47 per cent. to 50 per cent	0 0 8¼	—
3rd quality, 40 per cent. to 47 per cent	0 0 7¼	—

* Unit corresponds to 1 per cent.

ALUMINIUM.	Per ton.
98-99 per cent	£60 to £65

NICKEL.	Per ton.	Per ton.
98-99 per cent. guaranteed	170 0 0	175 0 0

PLATINUM.

Per oz. Troy, 100s.; nominal and subject to negotiation.

**Mining Journal.*

CURRENT NEW YORK WHOLESALE PRICES OF METALS, MINERALS, CHEMICALS, ETC.

Selected from the Engineering and Mining Journal

		U. S. Currency.
ABRASIVES.—		
Bort, good drill quality	carat	$ 85.00
Carborundum, grains	lb	.10-.17
Corundum	"	.07-.10
Emery, grain	"	.035-.045
Pumice Stone, American powdered	100 lbs	1.60-2 00
ACIDS.—		
Hydrochloric 20°	lb	1.25-1.50
Nitric, 38°	"	4.25-4.625
Sulphuric, 66° bulk	ton	18.00
ALUMINUM, Sulphate Com'l	lb	1.10-1 75
ANTIMONY, needle	"	.05-.06
ARSENIC, white	"	05-.055
red	"	.07½-.70
ASPHALTUM.—		
Trinidad	ton	28 00-30.00
California	"	21.00-27.00
BLEACHING POWDER, 35%	100 lbs	1.25-1.40
BLUE VITRIOL	lb	5.00
BONE ASH	"	.02¾-.04
BORAX	"	.04½- 05½
*CAPS detonating	M	-7.50
CEMENT.—		
Portland, American	500 lbs. bbl	1.55-1.60
Foreign	" " "	2 25-2.90
Rosendale	300 " "	.85
*Green Island	375 " "	2.75
*Alsen		3.00
CLAY, CHINA.—		
American common	lg. ton	8 50-9.00
Foreign	"	10.00-17.50
***COALS.—**		
Batan, at Mines	ton	3.00
Australian	"	5 50
COPPER	lb	.13-.14
*DYNAMITE 40%	"	.20
FELDSPAR ground best	sh. ton	10 50-15.00
FIRE BRICK, American	M	30.00-40 00
Imported	"	30.00-45.00
FIRE CLAY, St. Louis Mill	ton	2 50
FUSE—Blasting	1,000 ft	7 50
GRAPHITE—Ceylon, lump	lb	.04-.10
Large lump	lb	.07-.10
GYPSUM—Fertilizer	sh ton	7 00
Powdered	sh. ton	12.00-20.00
LEAD	lb	-.04
MAGNESITE-Greece, crude, 95%	lg. ton.	8.00-10 00
Bricks, domes	per M	160-200
MANGANESE, Ore, 80-85%	sh. ton	20.00-50.00
MERCURY, export flask	75 lbs	36 00-39 00
PAINTS AND COLORS.—		
Litharge American P'w'd	lb	.06½-.06¾
Ochre, Am. Com	sh. ton	8.50-9.00
Paris green, pure, bulk	lb	.26
Turpentine, spirits, bbl	gal	.44½- 4
White lead, Am. dry	lb	.05⅝- 0
Am. in oil	"	.06½-.06
Zinc, white, Am. extra dry	"	.05⅜-.05
PHOSPHATES, Acid	per unit	.65-.7
Florida hard rock	lg. ton	10.25-10.5
Land pebble 68%	"	5.25-5 5
POTASSIUM Cyanide (98-99%)	lb	.18-.19
PLATINUM	oz	28 00
PLATINUM, Scrap	oz	17 00
SPELTER	lb	.045-.046
NICKEL Small lots	lb	.50- 60
*POWDER, black blasting A	lb	.15
*Judson	"	.14½
Pyrite, Domestic Non-arsenical, Lump	unit	.11-.11½
Imported non-arsenical lump	"	.12½- 13
Imported, arsenical	" "	.12-.12½
SALTPETER crude	100 lbs	4.50-5.00
SILICA, Lump quartz	lg. ton	5 00-6 00
Ground quartz, ordinary	"	13 00-15 00
Glass sand, ordinary	"	2.7
SILVER	oz	.55½-.55
SODIUM cyanide (100% KCN)	lb	.1
*STEEL, octagon drill	lb	.
SULPHUR, Louisiana prime	lg. ton	22
Roll	100 lbs	1 85-2.
Flowers sublimed	"	2 20-2.
TALC—Domestic	sh. ton	15.00-25.
Italian, best	"	35 00-40.
TIN	lb	.9½
ZINC, Sheet	100 lb	7.
Dust	lb	.05⅞-.06

*Manila quotation.

HEMP STATISTICS, 28th MARCH, 1909.

(Courtesy of C. S. NICHOLSON, *Secretary, Manila Chamber of Commerce.)*

EXPORT OF HEMP, MARCH, 1909.

Date	Vessel	London	L'pool	Atlantic U. S.	Pacific East & California	Continent.	Australia	Other Pts.	Total Bales
1909	Forward	44,042	16,022	66,04	13,942	10,762	2,020	3,963	157,455
March 2	Tean	350				885		250	1,485
" 5	Zafiro	850						800	1,650
" 3	Indrapura			18,267					18,267
" "	Prinz Waldemar.					50		275	325
" "	Taiyuan						140		140
" 6	Yuensang	1,650				100		500	2,250
" 8	Polyphemus	11,618	9,712			2,303			23,633
" 11	Gymeric				1,703			141	1,844
" 12	Kumano Maru							225	225
" "	Rubi	1,900	300			675		350	3,225
" 15	Schuylkill...Cebu			11,057					11,057
" 16	Tean	2,950	2,800						5,750
" 19	Zafiro							150	150
" "	Yuensang					68		193	261
" 18	Banca ......Cebu	4,396				600			4,996
" 22	Nikko Maru						1,435		1,435
" 23	Isla de Luzon		1,750			41			1,791
" 24	Taming		1,750						1,750
" 26	Rubi		1,700					660	2,360
" "	Loongsang		250			100		760	1,110
" 22	Sungkiang...Cebu	100	3,313					73	3,486
" 27	Schuylkill			20,485					20,485
" 30	Tean	750				700			1,450
" 29	Prinz Waldemar.						100		100
" 30	Prinz Sigismund.			20,485				422	422
		68,606	37,597	116,513	15,645	16,284	3,695	8,782	267,222

FAR EASTERN STOCKS AND QUOTATIONS

Courtesy of Messrs. Kadoorie & Co., Hongkong, April, 1909.

STOCK.	WHEN, ESTABLISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.*	CLOSING QUOTATIONS.
BANKS.											
Hongkong & Shanghai Banking Corporation	1865	$15,000,000	120,000	$125	$125	s £1,500,000 g $14 500,000 i $250,000	$2,006,234	31-12-08	Final of £2-and bonus of 5|- @ ex 1|8 ¾ = $26.024, making in all $47.966 for 1908	5¼	$920 sellers £86-
National Bank of China, Ld.	1891	£699,475	10) 99,925	£7	£6	c £4,099 $150,000	$10,223	31-12-07	$2 (London 3|6) for 1903	....	$51
MARINE INSURANCES.											
Canton Insurance Office, Ld.	1881	$2,500,000	10,000	$250	$50	$1,560,000 j $232,757 u $411,990	Nil.	31-12-07	$14 for 1907	7½	$187½ buyers
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	g £125,000 s Tls. 150,000 u Tls. 303,747 f Tls. 118,277	Tls. 160,512	30-6-08	Final of 7|6 making 15|- for 1907	5½	Tls. 100 buyers
Union Ins. Society of Canton, Ld.	1867	$3,100,000	12,400	$250	$100	s $3,000,000 g £90,000 f $302,478 j £129,695 u $727.649	$2,506,011	31-12-07	Final of $15 making $45 for 1906, and interim of $30 for account 1907	5½	$850 sales
Yangtsze Ins. Association, Ld.	1862	$1,200,000	12,000	$100	$60	$1,000,000 j $199,032 f $85,157	$591,763	31-12-08	$12 and bonus $3 for 1906	7	$225 buyers
FIRE INSURANCES.											
China Fire Ins. Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 x $438,668 f $13,802	$375,314	31-12-08	$6 and bonus $2 for 1907	7¾	$105
Hongkong Fire Ins. Co, Ld.	1868	$2,000,000	8,000	$250	$50	$1,438,173	$368,711	31-12-08	$27 for 1907	8½	$315 buyers
SHIPPING.											
China & Manila Steamship Co., Ld.	1882	$750,000	1) 30,000	$25	$25	$7,000	$1,035	31-12-07	$1 for 1906	....	$7 buyers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$264,638 i $99,067	Nil.	30-6-08	$2½ for year ending 30-6-08	7½	$35 buyers
Hongkong, Canton & Macao Steamboat Co., Ld.	1865	$1,200,000	80,000	$15	$15	e $250,000 d. i. $607,500 f $ 79,428 $ 25,344	$20,279	30-12-08	Final of $1¼ making in all $2½ for 1908	8¾	$29½ sellers
Indo-China Steam Navigation Co., Ld. (Preferred) Do. Do. (Deferred)	1882	m £600,000	2) 60,000 2) 60,000	£5	£5	£10,000 i £240,000	£13,700	31-12-07	6|- for 1907 on pref. shares only at ex. 1|9 11|16, $3.154	5½	$40 buyers $20 buyers
Shanghai Tug & Lighter Co., Ld. Do. Preference	1903	Tls. 1,500,000	20,000 10,000	Tls. 50	Tls. 50	Tls. 75,000	Tls. 14,510	31-12-08	Final of Tls. 1¾ making Tls. 3½ for 1908	7½ 7	Tls. 50 buyers Tls. 52½ buyers
"Shell" Transport & Trading Co., Ld.	1898	£ 2,000,000	2,000,000	£1	£1	£720,000 i £100,000	£63,817	31-12-07	Second Interim of 1/- for a|c 1908	6	54|- buyers
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 i $47,221	$98	30-4-08	$1.00 50 cts. for year ended 30-4-08	4 3½	$23½ $15
Taku Tug & Lighter Co., Ld.	....	Tls. 1,500,000	12) 30,000	Tls. 50	Tls. 50	Tls. 98,000 d Tls. 481,479 e Tls. 44,100 i Tls. 81,200 g Tls. 7,000	Tls. 2,215	31-12-08	Final of Tls. 1½ making Tls. 2½ for 1908	11	Tls. 45 sales
REFINERIES.											
China Sugar Refining Co., Ld.	1878	$2,000,000	20,000	$100	$100	e $350,000 r $56,848	*Dr.* $5858	31-12-08	$5 for year ending 31-12-08	3¾	$137½ sa. & bu.
Luzon Sugar Refining Co., Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $135,893	31-12-08	$3 for 1897	—	$17
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 100,000	Tls. 9,173	31-8-07	Tls. 3½ for year ending 31-8-08	....	Tls. 127½ sales
MINING.											
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	d £175,000 h £12,289	£11,556	28-2-07	Final of 1|6 (Coupon No. 11) for year ending 29-2-08	7	Tls. 18½ buyers
Raub Australian Gold Mining Co., Ld	1892	£200,000	150,000 50,000	£1 £1	18-10 £1	£4,873	*Dr.* £2,191	31-3-08	No. 12 of 1|- = 48 cents	—	$8 sales
DOCKS, WHARVES AND GODOWNS.											
Fenwick (Geo.), & Co., Ld.	1889	$450,000	z 18,000	$25	$25	$42,986 $53,601	*Dr.* $7,421	31-12-08	$1¾ for year ending 31-12-06	—	$12
Hongkong & Kowloon Wharf & Godown Co., Ld.	1886	$3,000.000	60,000	$50	$50	$550,000 t $26,806 i $40,000	$30,102	31-12-08	Final of $1½ making $3½ for 1907	—	$50 buyers
Hongkong & Whampoa Dock Co., Ld.	1866	$2,500,000	50,000	$50	$50	i $97,199 v $200,000	$387,078	31-12-08	Final of $4 making $8 for 1908	10	$80 buyers
Shanghai Dock & Engin'g Co., Ld.	1906	Tls. 5,570,000	13) 55,700	Tls. 100	Tls. 100	Tls. 1,000,000	Tls. 33,742	30-4-08	Interim of Tls. 2½ for month ending 31-10-1908	5¾	Tls. 85 buyers
Shanghai & Hongkew Wharf Co., Ld.	1902	Tls. 3,600,000	36,000	Tls. 100	Tls. 100	b Tls. 697,257 r Tls. 50,000 e Tls. 125,000	Tls. 22,818	31-12-08	Final of Tls. 6 making Tls. 10 for 1908	6	Tls. 164 buyers
LANDS, HOTELS AND BUILDINGS.											
Anglo-French Land Investment Co., Ld.	1906	Tls. 2,500,000	3) 25,000	Tls. 100	Tls. 100	Tls. 25,000	Tls. 6,531	29-2-08	Tls. 6 for year ending 29-2-08	6	Tls. 103 buyers
Astor House Hotel Co., Ld.	1901	$750,000	4) 30,000	$25	$25	$30,000	*Dr.* $4,200	30-6-08	$2½ for year ending 30-6-07	...:	$19½ buyers
Astor House Hotel, Ld. (Tientsin)	....	Tls. 200,000	4,000	Tls. 50	Tls. 50	Tls. 35,000 e Tls. 10,000	Tls. 1,013	28-2-0	20 per cent. for 1906	....	Tls. 60
Central Stores, Ld.	....	$751,845	16) 50,123	$15	$15	n. $1,000	$24,641	31-12-08	$1.20 on old & 60 cts. on first new issue	....	$18 sales
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 r $13,912	$295	31-12-08	Final of $3 making $6 1908	7¼	$83 sales
Hongkong Land Investment & Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	e $250,000	$26,475	31-12-08	Final of $3½ making $7 for 1908	7	$100
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	i $222,172 20) $43,261	$5,486	31-12-08	60 cents for 1908	7	$8¾
Kowloon Land & Bldg. Co., Ld.	1889	$300,000	6,000	$50	$30	none	$278	31-12-08	$1½ for 1908	5	$30
Shanghai Land Investment Co., Ld.	1888	Tls. 3,900,000	78,000	Tls. 50	Tls. 50	Tls. 1,523.045 e Tls. 300,000	Tls. 142,404	31-12-08	Final of Tls. 3 & bonus of Tls. 2 making Tls. 8 for 1908	7	Tls. 118 sales
Tientsin Land Investment Co., Ld.	1902	Tls. 772,600	7,726	Tls. 100	Tls. 100	i Tls. 75,185	Tls. 129	31-12-08	Final of Tls. 2 making Tls. 5 for 1908	7	Tls. 85 buyers
West Point Bldg. Co., Ld.	1889	$625,000	12,500	$50	$50	none	$1,968	31-12-08	Final of $2 making $4 for 1908	9	$44 sellers
COTTON MILLS.											
Ewo Cotton Spinning & Weaving Co., Ld.	1895	Tls. 1,000,000	5) 20,000	Tls. 50	Tls. 50	Tls. 150,000 Tls. 45,939	Tls. 8,820	31-10-08	Tls. 5 for year ended 31-10-08	4	Tls. 122 sellers
Hongkong Cotton Spinning, Weaving & Dyeing Co., Ld.	1901	$1,250,000	125,000	$10	$10	e $20,000	$9,553	31-7-08	50 cents for year ending 31-7-08	5½	$9 sellers

FAR EASTERN STOCKS AND QUOTATIONS—(CONTINUED.)

STOCK.	WHEN ESTABLISHED	CAPITAL.	NO. OF SHARES.	VALUE.	PAID UP.	RESERVE	AT WORKING ACCOUNT.	DATE.	LAST DIVIDEND.	Approximate Yield per cent. per annum at Present Quotation.	CLOSING QUOTATIONS
International Cotton Manufacturing Co., Ld.	1895	Tls. 750,000	6) 10,000	Tls. 75	Tls. 75	Tls. 175,000	Tls. 8,372	30-9-08	Tls. 6 for year end. 30-9-06 (8%).	....	Tls. 90
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	Tls. 800,000	8,000	Tls. 100	Tls. 100	none	Tls. 4,829	31-12-08	Tls. 4 for 1908	....	Tls. 103 buyers
Soy Chee Cotton Spinning Co., Ld	1895	Tls. 1,000,000	2,000	Tls. 500	Tls. 500	l Tls. 31,172	Tls. 15,911	31-12-08	Tls. 50 for 1906	....	Tls. 385 buyers
MISCELLANEOUS.											
Bell's Asbestos Eastern Agency, Ld.	1895	£5,377.10s	11) 8,604	12 6	12/6	£1,500	£648	31-12-08	1s. 10½d. for 1907=$1.037	10	$10 sales
China-Borneo Co., Ld.	1903	$720,000	8) 60,000	$12	$12	$25,000	Nil.	31-12-07	$1.20 for, 1907	9¾	$12½ sales
China Light & Power Co., Ld.	1901	$550,000	50,000	$10	$10	none	$61,138	28-2-07	60 cents for year ending 28-2-06	8½	$5
Do. do. Special Shares	1907		17) 50,000	$1	$1						
China Provident Loan & Mortgage Co., Ld.	1898	a $1,250,000	7) 125,000	$10	$10	$100,000	$3,407	31-12-08	80 cents for 1908	---	$9¼ sellers
Dairy Farm Co., Ld.	1896	$300,000	40,000	$7½	$6	i 10,000 $8,000	$48	31-7-08	$1.30 for year ending 31-7-08	5¾	$14½ buyers
Green Island Cement Co., Ld.	1889	$4,000,000	400,000	$10	$10	$12,000	$5,078	31-12-07	Interim of 40 cents for % 1908	9¾	$9.30 buyers
H. Price & Co., Ld	1907	$120,000	19) 15,000	$10	$10	$5,000	$251	31-12-07	75 cts. for 9 months endg. 31-12-07	8	$12
Hall & Holtz, Ld.	....	$420,000	14) 21,000	$20	$20	$186,000	$8,957	28-2-08	$2 for year ending 28-2-08	10	$24 sales
Hongkong Electric Co., Ld.	1889	$600,000	60,000	$10	$10	$20.000	$9,321	29-2-08	$1.00 and bonus 20 cents for year ending 29-2-08.	6¼	$19¼ buyers
Hongkong Ice Co., Ld.	1881	$125,000	5,000	$25	$25	k $150,000	$7,616	31-12-08	Final of $15 per share making in all $19 for 1908	9¼	$175 sellers
Hongkong Rope Manufacturing Co., Ld.	1883	$600,000	$60,000	$10	$10	$20.000	$8,790	31-12-08	Final of $1 per share making $2 for 1908	8¼	$24
Maatschappij tot Mijn-, Boschen Landbouwexploitatie in Langkat	1902	Gs. 2,500,000	25,000	Glds. 100	Glds. 100	Tls. 547,500 i Tls. 63,914 21 Tls. 547,500	Tls. 316,682	31-10-08	First quarterly dividend of Tls. 12½ for % 1909	6¼	Tls. 785 buyers
Peak Tramways Co., Ld.	1907	$750,000	25,000	$10	$10	$5,000	$ 7,471	30-4-08	80 cents on fully paid shares & 6 cents on $1 paid shares for year ending 30-4-08	6	$14
Do. (New)			50,000	$10	$1					4	$2
Philippine Co., Ld.	1904	$750,000	75,000	$10	$10	none	Ps. 18.640	31-12-08	None	---	$8
Shanghai Gas Co., Ld.	1903	Tls. 800,000	24,000	Tls. 50	Tls. 50	d Tls. 100,000	Tls. 6,603	31-12 07	Interim of 7% Tls. 3½ for % 1908	6¾	Tls. 115 buyers
Shanghai-Sumatra Tobacco Co., Ld.	1902	Tls. 600,000	9) 30,000	Tls. 20	Tls. 20	Tls. 24,820 w Tls. 75,000	Tls. 5,250	31-10-08	Final of Tls. 5 making Tls. 8 for 1908	6	Tls. 132½ buy. ex [div.
Shanghai Waterworks Co., Ld.	1881	£327,000	16,350	£20	£20	Tls. 190,000	Tls. 58,332	31-12-07	Final of 37/6 making in all 52/6 for 1907	---	Tls. 437½ sales
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	Dr. $56,602	31-8-08	None	---	$24
Steam Laundry Co., Ld.	1902	$100,000	20,000	$5	$5	none	$236	31-5-08	40 cents for year ending 30-5-08	7½	$5½ sales
Tientsin Waterworks Co., Ld.	1901	Tls. 200,000	2,000	Tls. 100	Tls. 100	Tls. 15,259 e Tls. 4,000	Tls. 201	30-4-07	Tls. 6½ for year ending 30-4-07	---	Tls. 94 buyers
Union Waterboat Co., Ltd.	1905	$500,000	15) 50,000	$10	$10	none	$172	31-12-08	60 cents for year-end, 31-12-1908	5	$10 sales
United Asbestos Oriental Agency, Ld.	1896	$100,000	10,000	$10	$4	$35,000	$1,360	31-5-07	80 cts. on 9,900 ord shares & $19.80 on 100 founders shares for year ending 31-5-07	6½	$13 buyers
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 e $25,000	$6,438	31-12-07	Interim of 30 cents % 1908	6¾	$9 buyers
Weismann Limited	1904	$17,500	175	$100	$100	$6,700	$13	31-7-07	10 per cent for year endg. 31.7.07.	---	$150
William Powell, Ld.	1901	$105,000	15,000	$7	$7	none	$3.95	30-6-08	Final of 30 cents making 80 cents for year ending June 30th 1906	---	$2½ buyers

LOANS AND DEBENTURES.	AGENTS FOR THE LOAN.	AMOUNT OF LOAN.	PAR VALUE.	OUTSTANDING BONDS.	WHEN PAYABLE.	CLOSING QUOTATIONS.	
China Government, 7 per cent. Silver Loan 1908 E.	Hongkong & Shanghai Banking Corporation.	Tls. 767,200	Tls. 250	1914	Mar. 31st and Sept. 30th each year until Mar. 31st, 1917	par.	Plus interest
Hongkong Hotel Company, Ltd., 6 per cent. Mortgage Debentures of 1899 ‡		$500,000	$500	§ all	Half yearly, June 30th and December 31st	par	
Shanghai & Hongkew Wharf Company, Ltd., 6 per cent. Debentures of 1902		Tls. 543,900	Tls. 100	....	Half yearly, June 30th and December 31st	Tls. 103½	
Astor House Hotel Company, Ltd., 8 per cent. Debentures of 1903		Tls. 500,000	Tls. 100	....	Half yearly, January 1st and July 1st	102½	
Chinese Engineering & Mining Co., Ltd., 6 per cent. Debentures of 1903 †	....	£500,000	¶	£431,960	Half yearly, June 30th and December 31st	par.	
International Cotton Manufacturing Co., Ltd. 7% Debentures of 1901	Russo Chinese Bank	Tls. 500,000	Tls. 100	‖	Half yearly, March 31st and Sept. 30th	Tls. 97½.	
China Light and Power Co., Ltd. 6% Debentures of 1907 ***	....	$500,000	$100	....	Half yearly, June 30th and December 31st.	par.	

a Authorized capital $2,000,000.
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
k Contingencies Account.
l Legal Reserve Fund.
m Authorized Capital
n Sinking Fund.
o Raw Sugar Reserve Account.
p Premium on New Issue.
q Boiler Repairs and Renewals Account
r Repairs and Renewals Account.
s Silver Reserve Fund.
t Depreciation and Repair Account
u Underwriting Suspense Account.
v Special account
w Special Works Fund.
x Extra Reserve Fund.
y 72,560 owned by the Company.
z 7,200 shares unissued.
1 4,000 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 5,000 shares unissued.
4 4,480 shares unissued.
5 5,000 shares unallotted.
6 1,616 shares unallotted.
7 75,000 shares unissued.
8 14,000 shares unissued.
9 17,000 shares unissued.
10 40,453 shares actually issued.
11 7,688 shares actually issued.
12 4,200 shares unissued.
13 500 shares unissued.
14 399 shares unissued.
15 22,277 shares unissued.
16 10,000 shares unissued.
17 Special shares are entitled to half of the profits.
18 Capital contributed by Chinese Government Kuping Tls. 5,000,000.
19 12,000 issued only.
20 Typhoon and Floods Insurance Fund.
21 Special Cash Reserve.
* Based on last year's dividend.
** Based on present dividend.
‖ Only Tls. 134,000 taken up.
§ 216 held by the Company.
¶ In certificates of £20 and £100.
‡ Redeemable in 10 years.
† Redeemable at par at rate of £10,000 per annum from 31st December 1903 to 31st December 95.
*** Redeemable at par on 30th June, 1915.
Dr. Deficit.

ADDITIONAL SHANGHAI SHARE QUOTATIONS

STOCK	CLOSING QUOTATIONS	HIGHEST AND LOWEST PRICES DURING THE WEEK	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	LAST DIVIDEND	WHEN PAID
Oriental Consolidated Mining Co., Ltd....	27s. 6d.		G. $5,000,000	500,000	G. $10	G. $10	none	3rd Div. of Gold cents 50 making gold $1½ for year ended 30th June 1907.	Dec. 31, 1908
Kiang pei-ting Coal & Iron Mine Co., Ltd....	Tls. 50		Tls. 500,000	5,000	Tls. 100	Tls. 50	—	First year....	—
Vulcan Iron Works, Limited....	Tls. 400		Tls. 500,000	1,000	Tls. 500	Tls. 500	—	Tls. 50 for year ended 31.8.06....	Nov. 1, 1906
Yangtsze Wharf & Godown Co., Limited....	Tls. 125 nominal		Tls. 250,000	2,500	Tls. 100	Tls. 100	Tls. 50,000	Tls. 15 for 1908....	April 1, 1909
Wei-hai-wei Land & Building Co., Limited....	Tls. 10 nominal		Tls. 91,850	3,674	Tls. 25	Tls. 25	—	—	—
Union Estate & Investment Co., Limited....	Y. 105 sales		Y. 1,000,000	10,000	Y. 100	Y. 100	—	First year....	—
Grand Hotel, Limited....	Y. 100 sellers		Y. 500,000	5,000	Y. 100	Y. 100	—	Interim Y. 5 for ½ year....	Dec. 31, 1908
Hotel des Colonies Company, Limited....	Tls. 9 sellers		Tls. 112,500	9,000	Tls. 12½	Tls. 12½	Tls. 29,783	6% for 1907....	May 29, 1908
Kalee, Limited....	$100 nominal		$400,000	4,000	$100	$100	—	$5 for 1907....	May 22, 1908
Anglo-German Brewing Co., Limited....	$85 buyers		$100,000	4,000	$100	$100	none	$7 for 1907....	Mar. 12, 1908
Butler Tile Works, Limited....	Tls. 50 nominal		Tls. 60,000	1,200	Tls. 50	Tls. 50	—	Tls. 3 for year ending 31.3.07....	May 29, 1907
Major Bros, Limited....	Tls. 40 sellers		Tls. 300,000	6,000	Tls. 50	Tls. 50	—	—	—
Oriental Ice Company, Limited.	Tls. 50		Tls. 130,000	2,600	Tls. 50	Tls. 50	—	First year....	—
Scharffs Oil and Bone Mills, Ltd.	Tls. 50		Tls. 200,000	4,000	Tls. 50	Tls. 50	—	First year....	—
Shanghai Ice Company, Limited.	Tls. 13 sales		Tls. 200,000	8,000	Tls. 25		—	3% for 1907....	Mar. 14, 1908
Shanghai Oil Co., Limited....	Tls. 25		Tls. 175,000	7,000	Tls. 25	Tls. 25	—	First year....	—
Campbell, Moore & Co., Limited.	$10 buyers		$12,000	1,200	$10	$10	$9,000	$3 for 1905....	Apr. 2, 1906
Dunning & Company, Limited..	$50 sellers		$100,000	2,000	$50	$50	—	$5 year ending 28.2.08....	Apr. 15, 1908
J. Llewellyn & Co., Limited....	$50 buyers		$72,000	1,200	$60	$60	—	$6 for 1907....	May 16, 1908
Lane, Crawford & Company....	$137½ sales	137½	$250,000	2,500	$100	$100	—	Final of 7% making 14% for 1907....	May 25, 1908
Mondon (E. L.) Limited....	Tls. 6 buyers		Tls. 225,000	9,000	Tls. 25	Tls. 25	none	—	—
S. Moutrie & Company, Limited.	$48 sellers		$250,000	5,000	$50	$50	—	$4 for year ended March 31, 1908..	June 18, 1908
Weeks & Company, Limited....	$22 buyers		$400,000	20,000	$20	$20	$25,000	10% for year ended 28.2.08....	May 30, 1908
Dominion Rubber Co., Limited.	Tls. 4		Tls. 225,000	22,500	Tls. 10	Tls. 4	—	First year....	—
Kalumpong Rubber Co., Ltd....	Tls. 42 sellers		Tls. 700,000	14,000	Tls. 50	Tls. 50	** Tls. 11,844.48	6% for 1907....	Nov. 29, 1908
Senawang Rubber Estates Company, Limited....	Tls. 100		Tls. 250,000	2,500	Tls. 100	Tls. 100	—	—	—
Senawang Rubber Estates Company, New....	Tls. 75				Tel. 100	Tls. 75			
Tebong Rubber and Tapioca Estate, Limited....	20s.		£76,000	76,000	£1	£1	—	—	—
Eastern Fibre Co., Limited....	Tls. 10 nominal		Tls. 300,000	30,000	Tls. 10	Tls. 10	—	—	—
Shanghai Mercury, Limited....	Tls. 50 buyers		Tls. 105,500	2,100	Tls. 50	Tls. 50	—	Final of 6% making 10% for year ended 30.4.08....	June 29, 1908
Shanghai Mutual Telephone Co., Limited....	Tls. 57 buyers	57½	Tls. 675,000	13,500	Tls. 50	Tls. 50	—	Tls. 3 for 1907....	June 28, 1908
China Export Import & Lumber Company, Limited....	Tls. 92½ nominal		Tls. 350,000	500	Tls. 100	Tls. 50	—	10 p. c. for year ending 29.2.08....	May 1, 1908
China Printing Co., Limited....	Tls. 50		Tls. 750,000	1,500	Tls. 50	Tls. 50	—	80 cents for 1908....	Feb. 8, 1909
Dallas Horse Repository Co., Ltd.	Tls. 25 nominal		Tls. 250,000	5,000	Tls. 50	Tls. 50	—	—	—
Hirano Mineral Water Co., Ltd.	Y. 15 sales		Y. 125,000	5,000	Y. 25	Y. 25	—	10%=yen 2½ for year ending 30th Sept. 08....	Dec. 1908
E. E. Porter & Co., Limited....	$50		$100,000	2,000	$50	$50	—	$6 for 1907....	Apr. 22, 1908
Shanghai Electric & Asbestos Company, Limited....	$23 sales		$125,000	5,000	$25	$25	—	Final of 4% making 8% for 1907....	May 29, 1908
Shanghai Electric Construction Company, Limited....	£11 buyers	£11	£300,000	30,000	£10	£10	—	First year....	—

DEBENTURES

LOANS	PRICE—PLUS ACCRUED INTEREST	AMOUNT OF LOAN	OUTSTANDING	NOMINAL VALUE	RATE OF INTEREST	WHEN PAYABLE
Shanghai Municipal Debentures.... 1892	Tls. 92½	Tls. 50,000	Tls. 45,400	Tls. 100	5 %	June & Dec.
do 1893	,, 96	,, 125,000	" 32,000	" 100	5½ ,,	Do
do 1894	,, 104½	,, 105,000	" 60,000	" 100	6 ,,	Do
do 1895	,, 92½	,, 115,000	" 32,600	" 100	5 ,,	Do
do 1896	,, 92½	,, 140,000	" 131,800	" 100	5 ,,	Do
do 1897	,, 92½	,, 268,800	" 268,400	" 100	5 ,,	Do
do 1898	,, 104½	,, 300,000	" 60,000	" 100	6 ,,	Do
do 1900	,, 96	,, 33,900	" 31,700	" 100	5½ ,,	Do
do 1901	,, 104½	,, 250,000	" 200,000	" 100	6 ,,	Do
do 1902	,, 104½	,, 150,000	" 150,000	" 100	6 ,,	Do
do 1903	,, 104½	,, 490,500	" 490,500	" 100	6 ,,	Do
do 1904	,, 104½	,, 214,500	" 214,500	" 100	6 ,,	Do
do 1905	,, 104½	,, 320,000	" 320,000	" 100	6 ,,	Do
do 1907	,, 104½	,, 250,000	" 250,000	" 100	6 ,,	Do
Chinese Imperial Government Loan.... 1886 E	,, 250	,, 767,200	" 354,400	" 250	7 ,,	Mar. & Sept
Shanghai Land Investment Co., Debentures.... 1890	,, 102	,, 250,000	" 250,000	" 100	6 ,,	May & Nov.
do 1892	,, 96	,, 250,000	" 250,000	" 100	5½ ,,	June & Dec.
do 1894	,, 101	,, 250,000	" 250,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 250,000	" 250,000	" 130	5 ,,	June & Dec.
do 1900	,, 102	,, 250,000	" 250,000	" 100	6 ,,	April & Oct.
do 1901	,, 102	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.
do 1901	,, 96	,, 100,000	" 100,000	" 100	5 ,,	May & Nov.
do 1902	,, 102	,, 400,009	" 400,000	" 100	6 ,,	June & Dec.
do 1905	,, 102	,, 250,000	" 250,000	" 100	6 ,,	Do
Shanghai Waterworks Co., Debentures.... 1894	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1896	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	June & Dec.
do 1899	,, 103	,, 50,000	" 50,000	" 100	6 ,,	Do
do 1900	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Mar. & Sept.
do 1902	,, 103	,, 100,000	" 100,000	" 100	6 ,,	Do
do 1903	,, 103	,, 100,000	" 100,000	" 100	6 ,,	June & Dec.
Perak Sugar Cultivation Co., Debentures.... 1902	,, 101	,, 200,000	" 200,000	" 100	7 ,,	April & Oct.
Shanghai Gas Co., Debentures.... 1897	,, 92½	,, 100,000	" 100,000	" 100	5 ,,	Do
do 1899	,, 102	,, 1,000,000	" 100,000	" 100	6 ,,	May & Nov.
do 1900	,, 102	,, 2,000,000	" 200,000	" 100	6 ,,	June & Dec.
Shanghai and Hongkew Wharf Co., Debentures.... 1902	,, 100½	,, 799,800	" 799,800	" 100	6 ,,	Do
Astor House Co., Debentures.... 1905	,, 103	,, 500,000	¶ " 500,000	" 100	7 ,,	Do
British Municipal Council, Hankow.... 1901	Sh. ,, 105	H'kow Tls 100,000	H'kow Tls 100,000	" 100	7 ,,	June & Dec.
Shanghai Club Debentures.... 1907	,, 96	Tls. 170,000	Tls. 170,000	" 100	6 ,,	Do
Country Club Debentures....	,, 97	,, 139,000	" 139,000	" 100	6 ,,	Do
do 1907	,, 97	,, 92,000	" 92,000	" 100	6 ,,	Do
Lane Crawford & Co., Debentures.... 1907	,, 100	,, 110,000	" 110,000	" 100	7 ,,	Mar. & Sept.
Anglo-French Land Debentures.... 1908	,, 102½	,, 250,000	" 250,000	" 100	6 ,,	June & Dec.

SINGAPORE SHARE QUOTATIONS

(COURTESY MESSRS. FRASER & CO., BROKERS, SINGAPORE, APRIL, 1909)

Date of Formation	Capital	Capital paid up	No. of Shares Issued	Issue Value	Paid up	Reserve	Last Dividend	Name	Buy	Sellers.	Closing Quotations
								MINING			
1903	$300,000	300,000	30,000	10	10		10% for year ending 31-3-08	Belat Tin Mining Co., Ltd.	5.50	6.00	6.00
1907	$300,000	225,000	22,500*y*	10	10			Bruang Ltd.	6.10	6.25	6.25
1901	$600,000	600,000	60,000	10	10	25,000	10% for year ending 30-4-08	Bruseh Hydraulic Tin Mining Co., Ltd.	7.50	8.00	8.00
1903	£500,000	444,769	444,769*a*	1	1			Duff Development Co., Ltd.	4.00	4.50	4.50
1907	$400,000	375,000	37,500*b*	10	10			Kanaboi, Ltd.	1.00	1.25	1.25
1901	£60,000	60,000	60,000	1	1		2/- interim for 1908	Kinta Tin Mines, Ltd.	9.25	9.65	9.65
1906	£100,000	100,000	100,000	1	1			Kledang Tin Mining Co., Ltd.	3.25	3.50	3.50
1905	$150,000	99,000	9,900*c*	10	10	10,000	35% for year ending 31-12-07	Kuantan Tin Mining Co., Ltd.	....	4.00	4.00
1906	£120,000	120,000	120,000	1	1			Lahat Mines Ltd.	7.75	8.25	8.25
1906	£30,000	30,000	30,000	1	1			Malaya and Siam Corporation, Ltd.	....	5/-	5/-
1906	$450,000	450,000	45,000	10	10			Malacca Tin Dredging Co., Ltd.	2.25	2.50	2.25
1906	£250,000	179,500	500,000*h*	5/-	5/-			Pahang Consolidated Co., Ltd.	18/6	19/6	19/6
			54,500	1	1			" " " *7% Pref.*	....	....	nominal.
1907	£100,000	80,000	80,000*i**	1	1			Pengkalen, Ltd.	6.00	6.10	6.00
1904	£120,000	100,000	100,000*d*	1	1	6,000	45% for year ending 30-6-07	Pusing Lama Tin Mines, Ltd.	3.25	4.00	4.00
1907	$450,000	300,000	30,000*g**	10	10			Rahman Hydraulic Tin Ltd.	....	8.00	8.00
1905	£27,000	21,750	21,750*e*	1	1		1/- interim during 1907	Rambutan, Ltd.	....	6.75	6.75
1892	£200,000	191,250	50,000	1	1	4,873	1/- paid January 1901	Raub Aust. Gold Ming. Co., Ltd, *Fully pd.*	6.40	6.60	6.60
			150,000	1	18/10		1/- " " "	" " " *Contributory*	6.00	6.25	6.25
1905	£40,000	40,000	40,000	1	1			Redhills Tin Mining Co., Ltd.	2.00	2.25	2.00
1898	*Gs*2.500,000	2,500,000	25,000	100	100		100% for year ending 31-12-08	Redjang Lebong Mining Co., Ltd.	....	....	1020.00
1900	$110,000	110,000	22,000	5	5		3% for year ending 22-1-09	Royal Johore Tin Mining Co., Ltd.	1.20	1.25	1.25
1907	$550,000	500,000	50,000*o**	10	10			Salak South, Ltd.	6.25	6.50	6.50
1907	£80,000	80,000	80,000	1	1			Sempam Tin Mines, Ltd.	1.25	2.00	2.00
1906	$850,000	850,000	85,000	10	10	25,000	10% for year ending 31-12-08	Serendah Hydraulic Tin Ming. Co., Ltd.	6.75	7.00	7.00
1899	$230,000	230,000	23,000	10	10		3% for ½ year ending 31-12-08	Sipiau Tin Co., Ltd.	4.75	5.25	4.75
1907	£90,000	70,000	70,000*z*	1	1			Tekka, Limited	9.50	9.75	9.75
1902	£160,000	149,185	149,185*f*	1	1		5/- during 1907	Tronoh Mines, Ltd.	7.00	7.25	7.00
								RUBBER			
1905	£150,000	137,062 10/-	46,500	1	1		10% interim for 1908	Anglo-Malay Rub. Co., Ltd. *Fully paid*	4.12.6	5.0.0	4.12.6.
			103,500	1	17/6			" " " *Contributory*	4.10.0	4.15.0	4. 10. 0
1905	$200,000	126,000	12,600*f**	10	10	7,400	12½% interim for 1908	Balgownie Rub. Estate Ltd. *Fully paid*	26.50	26.75	26.75
1904	£30,000	20,187 10/-	19,000	1	1			Batu Caves Rub. Co., Ltd.	3.10.0	3.15.0	3. 10. 0
			4,750*i*	1	5						
1907	£30,000	21,000	18,000*n**	1	1			Bukit Lintang Rubber Estates, Ltd.	1.0.0	1.3.0	1. 0. 0
			6,000	1	10/-			" " " *Contributory*	10/-	12/6	10/-
1903	£70,000	66,700	66,700*j*	1	1		12% interim for 1908	Bukit Rajah Rubber Co., Ltd.	5.5.0	5.10.0	5. 5. 0
1906	£35,000	27,000	6,000	1	1			Castlefield (K.) R. Estate, L., *Fully pd.*	21/-	22/6	21/-
			24,000	1	17/6			" " " " " *Contributory*	....	....	18/6
1906	$150,000	125,000	12,500*k*	10	10			Castlewood Rubber Co., Ltd.	3.75	4.00	4.00
1904	£16,000	16,000	10,000	1	1		17½% interim for 1908	Cicely Rubber Estates Co., Ltd.	6.2.6	6.10.0	6. 10. 0
			6,000	1	1		20% interim for 1908	" " " " *5% Pref.*	....	....	7. 0. 0
1905	£75,000	58,507	55,007*l*	1	1		5% interim for 1908	Consolidated Malay Rub. Estates, Ltd.	3.10.0	3.15.0	3. 10. 0
			7,000	1	10						
1906	£310,000	259,530	181,454*m*	1	1	8,784	5% interim for 1908	Highlands & Lowds. Para Rub. Co., Ltd.	2.7.6	2.10.0	2. 7. 6
			123,546	1	12/6			" " " " *Contributory*	1.9.6	1.11.0	1. 9. 6
1905	£50,000	36,500	23,000	1	1			Kapar Para Rubber Estates, Co., Ltd.	2.11.0	2.15.0	2. 11. 0
			27,000	1	10/-			" " " " " "	....	....	1. 15. 0
1906	£180,000	180,000	180,000	1	1		3% for year ending 30-6-08	Kuala Lumpur Rubber Co., Ltd.	1.13.6	1.15.0	1. 13. 6
1907	£320,000	232,395	197,395*c**	1	1			Lanadron Rubber Estates, Ltd.	2.4.0	2.5.0	2. 5. 0
			70,000	1	10/-			" " " *Contributory*	1.5.6	1.7.6	1. 5. 6
1906	*Gs* 175,000	175,000	540	250	250			Langen Rub. and Cocoanut Co., Ltd.	....	....	250.
			160	250	250			" " " " " *Deferred*	....	....	250.
1906	$250,000	230,950	23,095*n*	10	10			Ledbury Rubber Co., Ltd.	11.50	12.00	11.50
1895	£100,000	98,324 8/-	883,244*d**	2/-	2/-		20% interim for 1908	Linggi Plantations Ltd., *Ordinary*	13/6	14/-	13/6
			10,000	1	1			" " " *7% Pref.*	....	....	1. 0. 0
1906	£300,000	300,000	115,000	1	1		7½% for year ending 31-12-07	Malacca Rubber Plants., Ltd. *7½% Pref.*	1.13.0	1.14.0	1. 13. 0
			185,000	1	1			" " *Ordinary*	1.7.6	1.8.0	1. 7. 6
1903	£30,000	22,500	22,500*o*	1	1		45% for year ending 31-12-08	Pataling Rubber Estates Synd. Ltd.	7.5.0	7.10.0	7. 10. 0
1906	$250,000	225,000	22,500	10	10			Ragalla Rubber Co., Ltd. *Ordinary*	10.75	11.00	10.75
		25,000	2,500	10	10			" " " *8% Preference*	11.00	....	11.00
1904	£20,000	16,943 8/-	20,000*a**	1	1			Sagga Rubber Company Limited	2.0.0	....	2. 0. 0
1904	$100,000	99,000	990*j**	100	100		15% for year ending 31-1-08	Sandycroft Rubber Co., Ltd.	300.00	305.00	305.00
1898	£30,000	30,000	300,000	2/-	2/-		25% interim for 1908	Selangor Rubber Co., Ltd.	1.0.6	1.2.0	1. 0. 6
1905	$500,000	500,000	5,000	100	100			Singapore Rubber Co. Ltd.	110.00	115.00	110.00
1903	$250,000	250,000	2,500	100	100			Singapore & Johore Rub. Co., Ltd.	120.00	125.00	120.00
1905	$100,000	100,000	10,000	10	10		7½% for year ending 30-6-07	Sione Rubber Co., Ltd.	12.25	13.00	12.25
1906	£110,000	100,000	100,000*k**	1	1			Sungei Kapar Rubber Co., Ltd.	2.5.6	2.10.0	2. 5. 6
1904	£50,000	45,710	41,920*p*	1	1			Sungei Way (Selangor) Rub. Co., Ltd.	1.17.6	2.0.0	1.17. 6
			7,580	1	10			" " " " "	....	....	1. 7. 6
1904	£60,000	50,600	506,000*q*	2/-	2/-		25% interim for 1908	Vallambrosa Rubber Co., Ltd.	16/6	16/9	16/6
								GENERAL			
1894	£5,377.10.0	4,805	7,688*b**	12/6	12/6	1,500	15% for year ending 31-12-07	Bells Asbestos Eastern Agency, Ltd.	6.25	8.00	6.25
1908	$250,000	202,500	2,025*m**	100	100			Brunei Oil Royalty, Ltd.	....	100.00	100.00
1907	$1,500,000	1,099,672	27,083*l**	10	10		5% interim for 1908	Eastern Smelting Co., Ltd.	6.75	6.80	6.75
			118,406	10	7						
1898	$225,000	225,000	4,500	50	50	150,000	15% & 2½% bon. for yr. end. 31-12-08.	Fraser & Neave, Ltd.	140.00	142.50	140.00
1865	$15,000,000	15,000,000	120,000	125	125	15,000,000*t* 14,500,000*u* 250,000*v*	£2-0-0 per share and bonus of 5/- at ex.- 1/8¾ half year ending 31-12-08	Hongkong & Shanghai Bank'g Corpt'n.	....	....	86.0. 0
1905	$2,400,000	2,400,000	18,000	100	....	75,000	2½% for year ending 31-10-08	Howarth Erskine, Ltd.	....	95.00	95.00
			6,000	100	....		7% for year ending 31-10-08	" " *7% Pref.*	....	100.00	100.00
1896	$1,000,000	1,000,000	6,000	100	100	600,000	10% for year ending 31-12-07	Katz Brothers, Ltd. *Deferred*	....	125.00	125.00
			4,000	100	100		8% " " " " "	" " *8% Cum. Pref.*	....	....	150.00 nominal
1901	$34,000	34,000	3,400	10	10		20% for year ending 31-10-08	Maynard & Co., Ltd.	18.50	19.00	19.00
1899	$875,000	875,000	6,000	100	100	175,000	5% for year ending 31/12/07	Riley, Hargreaves & Co., Ltd.	55.00	57.50	55.00
			3,750	100	100		7% for year ending 31/12/07	" " " " *7% Pref.*	95.00	97.50	97.50
1903	$600,000	250,000	25,000*r*	10	10		7½% for year ending 30-6-08	Singapore Cold Storage Co., Ltd.	7.00	7.25	7.25
1891	$30,000	30,000	600	50	50	23,000	10% for year ending 31-7-08	Singapore Dispensary Ltd.	....	50.00	50.00
1903	£400,000	400,000	400,000	1	1			Singapore Electric Tramways, Co., Ltd.	3/3	3/9	3/6
1904	$160,000	112,000	1,120*e**	100	100	11,200	5% for year ending 30/6/07	Straits Engineering Syndicate, Ltd.	....	30.00	30.00
1884	$200,000	200,000	2,000	100	100	35,000	10% during 1907	Straits Ice Co., Ltd.	....	....	130.00
1890	$500,000	498,000	4,980*h**	100	100	760,000*w*	10% for year ending 31-12-08	Straits Steam Ship Co., Ltd.	195.00	197.50	195.00
1887	$3,000,000	3,000,000	300,000	10	10	1,250,000 1,222,409*x*	10% & 5% bon. for half yr. end. 30-9-08	Straits Trading Co., Ltd.	48.75	49.00	49.00
								DEBENTURES			
								Howarth Erskine, Ltd. 6% $ 600,000	....	1%	1% prem.
								Riley, Hargreaves & Co., Ltd. 6% 284,000	....	1%	1% prem.
								Singapore Electric Tramways, Co., Ltd. 5% £350,000	....	....	nominal
								Singapore Municipal 6% 400,000	....	....	20% prem. nom.
								" " 5% 1,878,000	6%	....	6% prem.
								" " 4½% 1,600,000	3%	5%	3% prem.
								" " 4% 602,900	7%	....	7% discount.
								Straits Engineering Syndicate, Ltd. 6% 45,000	....	par.	par.
								Tanjong Pagar Dock Board 5% 1,050,000	par	....	par.

a { 11,282 unissued
{ 43,9496% debenture
b 2,500 unissued
c 5,100 "
d 20,000 "
e 5,250 "
f 10,815 "
h { 100,000 " *Ord.*
{ 45,500 " *Pref.*
i 6,250 "
j 3,300 "
k 2,500 "
l 12,993 "
m { 4,140 "
{ 8,60 subscribed by employees

n 1,905 unissued.
o 7,500 "
p 500 to be issued to employess
q 94,000 unissued.
r 35,000 "
s 465 "
t Special Gold Reserve Fund
u Silver Reserve Fund.
v Insurance Fund.
w Sundry Reserves.
x Sundry Reserves.
y 7,500 unissued.
z 20,000 "
*a** 4,595 part-paid shares
*b** 916 unissued

*c** 52,605 unissed.
*d** 16,756 "
*e** 480 "
*f** 7,400 "
*g** 15,000 "
*h** 20 "
*i** 20,000 "
*j** 10 "
*k** 10,000 "
*l** 4,511 "
*m** 475 "
*n** 6,000 "
*o** 5,000 "

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, MARCH, 1909.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
Brett & Co., Ltd.	-Y- 28,000	2,800	-Y- 10	-Y- 10			31-12-07	10%	for 1 year	10 Nominal.
Club Hotel, Ltd.	185,000	1,850	100	100	3,000	-Y- 768.96	31-3-08	7%	for 1 year	70 Nominal.
Grand Hotel, Ltd.	500,000	5,000	100	100	10,000		31-12-08	3%	for ½ year	100 Buyers.
Helm Bros., Ltd.	186,000	3,720	50	50	25,000	-Y- 6,395.55	31-12-08	17½%	for 1 year	80 Sales,
Langfeldt & Co., Ltd.	150,000	1,500	100	100		Dr. 4,103.41	30-6-08		for ½ year	60 Nominal.
C. Nickel & Co., Ltd. †	500,000	20,000	25	25		1,782.10	31-10-08	20%	for 1 year	41 Sales.
Yokohama Engine and Iron Works *	500,000	10,000	50	50	50,000	-Y- 29,421.19	31-5-08	10%	for 1 year	65 Sales
Oriental Hotel, Ltd., Ordinary	250,000	3,000	50	50	306,090.49		31-8-07	12%	for 1 year	50 Nominal.
Oriental Hotel Ltd., Preference		2,000	50	50				8%	for 1 year	50 Nominal.
The Union Estate and Investment Co., Ltd. ‡	1,000,000	10,000	100	100	6,000.00	1,753.03	30-9-08	7%	for 1 year	100 Nominal.

† 285,000 unissued.
‡ 475,000 unissued.

*-Y- 390,000 issued.
110,000 unissued.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Brett & Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sales.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	100 Sales.
C. Nickel & Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.
Oriental Hotel, Limited	250,000.00	100.00	8%	1 April and 1 Oct.	100 Sellers.
Union Estate and Investment Co., Limited	250,000.00	100.00	6%	30 June and 31 Dec.	95 Sellers.

JAPANESE STOCKS.	FACE VALUE.	AMOUNT PAID UP.	LAST DIVIDEND.	DIVIDEND PAYABLE.	CLOSING QUOTATION.
Bonds & Debentures.					
Exchequer Bonds 2nd issue	-Y-100	-Y-100	5%	March and Sept.	-Y- 98.70
Exchequer Bonds 3rd issue	100	100	5%	March and Sept.	,, 97.70
Consolidated Bonds (Seiri)	100	100	5%	June and Dec.	,, 91.90
War Bonds (Gunji)	100	100	5%	June and Dec.	,, 91.90
Imperial 5% Bonds	100	100	5%	March and Sept.	,, 90.20
Special 5% Bonds (issued 1906)	100	100	5%	June and Dec.	,, 92.10
Yokohama Water Works Bonds	100	100	6%	June and Dec.	,, 96.20
Yokohama City Public Loan Bonds	100	100	6%	March and Sept.	,, 95.00
Osaka City Harbour Construction Bonds	100	100	6%	June and Dec.	,, 97.00
Osaka City Public Loan Bonds	100	100	6%	June and Dec.	,, 97.00
Kawasaki Dock Yards Co.'s Debentures	100	100	7%	June and Dec.	,, 97.00
Tokyo Race Associations "	500	500	30%	June and Dec.	,, 160.00
Railways & Electric Trams.					
Tokyo Railway Company Limited	50	50	4%	June and Dec.	,, 59.65
Yokohama Electric Tramway Company, Limited	50	50	6%	July and Jan.	,, 46.00
Keihin Electric Tramway Company, Limited	50	50	10%	June and Dec.	,, 73.00
Southern Manchurian Railway Co., Ltd.	100	20	6%	June and Dec.	,, 32.00
Hanshin Electric Tramway Co., Ltd.	50	50	12%	May and Nov.	,, 113.00
Cotton Spinnings.					
Kanegafuchi Cotton Spinning Company, Limited	50	50	14%	July and Jan.	,, 97.80
Fuji Gassed-yarn Company, Limited	50	50	14%	July and Jan.	,, 95.20
Tokyo Cotton Spinning Company, Limited	50	50	5%	July and Jan.	,, 39.20
Imperial Hemp Weaving Company, Limited	50	50	12%	July and Jan.	,, 66.00
Nisshin Boseki Kabushiki Kaisha	50	12½	....	——	,, 13.25
Sugar & Beer Cos.					
Dai-nippon Sugar Refinery Company, Limited	50	50	15%	May and Nov.	,, 21.05
Ensuiko Sugar Refinery Company, Limited	50	15	20%	June and Dec.	,, 35.00
Dai-nippon Beer Company, Limited	50	50	15%	July and Jan.	,, 78 75
Kirin Brewery Company, Limited	50	50	6%	July and Jan.	,, 51.00
Docks & Steamships.					
Yokohama Dock Company Limited	50	33	12%	June and Dec.	,, 53.50
Uraga Dock Company, Limited	50	50	....	July and Jan.	,, 11.00
Kawasaki Dockyard Company, Limited	50	50	12½%	Feb. and Aug.	,, 55.70
Nippon Yusen Kaisha	50	50	12%	May and Nov.	,, 78.50
Hokkaido Tanko S. S. Company, Limited	50	50	14%	July and Jan.	,, 55,95
Miscellaneous.					
Tokyo Electric Light Company, Limited	50	50	11%	June and Dec.	,, 84.90
Tokyo Gas Company, Limited	50	50	13%	July and Jan.	,, 93 20
Yokohama Union Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50
Fuji Paper Mills	50	50	6%	June and Dec.	,, 32.50
Otaru Timber Company, Limited	50	50	....	March and Sept.	,, 13.00
Hoden Petroleum Company, Limited	50	50	36%	April and Oct.	,, 125.40
Tokyo Rope Manufacturing Company, Limited	50	50	20%	June and Dec.	,, 102 00
Japan Horse Improvement Company, Limited	50	50	15%	March and Sept.	,, 12.00
Tokyo Stock Exchange Company	50	50	11¾%	June and Dec.	,, 144.40
Osaka Electric Light Company, Limited	50	50	15%	July and Jan.	,, 128.00
Kobe Electric Light Company, Limited	50	50	14%	July and Jan.	,, 87.50

BANGKOK QUOTATIONS

(COURTESY MESSRS. EDWARDS & CO., BANGKOK, SIAM.)

NAME.	BUYERS.	SELLERS.	QUOTATION.	ESTABLISHED.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND	LAST DIVIDEND	WHEN PAID OR PAYABLE.
Siam Electricity Co., Ltd.	Tcs. —	Tcs. 410	Tcs. 410	1901	£ 350,000	35,000	£ 10	£ 350,000	Tcs. 448,174.31	12% & 12½ T. bon.	Feb. 29, 1908
Paknam Railway Co., Ltd.	,, 190	,, —	,, 190	1893	Tcs. 400,000	5,000	Tcs. 80	Tcs. 400,000	,, 80,000	6% & 2 Tcl. bonus for ½ year ending	Dec. 31, 1907
Siam Tramway Co., Ltd.	,, —	,, —	,, 150	1905	,, 1,450,000	6250 Shares 7250 Deb. 1000 P. Shares	,, 100	,, 1,450,000	—	2%	Mar. 31, 1908 Sept. 30, ,,
Meklong Railway Co., Ltd.	,, —	,, 110	,, 115	July 12, 1907	,, 2,230,000	22,300	,, 100	,, 2,230,000	17,316.22	—	—
Bangkok Manufact. Co., Ltd.	,, 145	,, —	,, 160	1898	,, 400,000	4,000	,, 100	,, 400,000	—	None	— —
Howarth Erskine, Ltd.	,, —	,, —	,, 200	1905	$ 2,400,000	24,000	$ 100	$ 2,400,000	$ 40,000	5%	Oct. 31, 1908
Bangkok Dock Co., Ltd.	,, —	,, —	,, 150	1865	Tcs. 1,000,000	6,000	Tcs. 100	Tcs. 1,000,000	Tcs. 270,000 60,000	12½% & 2½ Bonus	Dec. 31, 1907
Siam Steam Packet Co.	,, —	,, 75	,, 80	1898	,, 131,250	2,625	,, 50	,, 131,250	,, 36,000	14%	Dec. 31, 1907
Siam Commercial Bank	,, —	,, 1,100	,, 1,150	1906	,, 3,000,000	3,000	,, 1,000	,, 3,000,000	,, 140,000	5%	Mar. 31, 1907
Menam Motor Boat Co.	,, —	,, —	,, 100	1905	,, 200,000	2,000	,, 100	,, 125,000	—	—	—
Jenderata Rubber Co.	,, —	,, —	,, 50	1906	£ 40,000	4,000	£ 10	£ 4, per Share	—	—	—

PHILIPPINE SHARE REPORT

April 1st, 1909

Name	When Established	Authorized Capital	Issue Value of Share	No. of Shares	Subscribed	Paid up	Reserve	Working %	Date	Last Dividend	Closing Quotations
American Drug Store	1908	₱ 100,000	₱1,000	100	40	₱1,000		₱ 5,000	Jan. 4, 1909		No Sellers.
*Banco Español Filipino	1851	3,000,000	200	15,000	8,439	200	₱225,000			7% for year 1908	190 nom.
Benguet Consolidated Mining Co	1903	2,000,000	2	1,000,000	495,000	2		38,000	Feb. 2, 1909		No Sellers.
Cadwallader-Gibson Lumber Co	1908	1,000,000	100	10,000	8,650	100					No Sellers.
*Compania Maritima		1,018,000	200	5,090	5,090	200					₱40 buyers
*El Varadero de Manila		350,000	100	3,500	3,500	100					Sellers 70
Export & Import Lumber Co		200,000	200	1,000	1,000	200					No sellers.
*Fabrica de Hielo de Manila		350,000	50	7,000	7,000	50				18% for year 1908	₱80 sellers
*Germinal Cigar Factory		500,000	500	1,000	1,000	500	₱285,000			6% for year 1908 and 6% on capital	700 sellers
H. E. Heacock Co	1909	100,000	100	1,000	800	100				First year	No sellers.
Insular Lumber Co	1907	2,000,000	200	10,000	9,000	200					No sellers.
Juan Seiboth Co., Ltd	1908	150,000	20	7,500	500	20				First year	
*La Concha Button Factory		75,000	100	750	750	100				10% for year 1908	₱110 sellers.
Lambert, Springer Co	1908	200,000	1,000	200	80	1,000					No sellers.
Luzon Stevedoring Co	1909	250,000	25	10,000	4,200	25				First year	
Walter E. Olsen Co., Inc	1909	500.000	100	5,000	2,033	100				First year	No sellers.
Paracale Gold Dredging Co	1907	£10,000	£1	10,000	9,000	£1					£1.10 s.
Palomar Park Amusement Co	1908	300,000		300,000	60,312	.50					₱1.
Phil. Hemp Machine Co	1907	150,000	100	1,500	1,235	100					No sellers.
Philippine Publishing Co	1907	600,000	200	3,000	2,181	200			Mar. 1st, 1909	₱3 a share for 1908	₱50
The Philippine Gold Dredging Co	1907	200,000	10	20,000	20,000	10					No sellers.
*Philippine Co., Ltd		750,000	10	7,500	7 500	10					₱5 buyers.
Philippine Rosin & Turpentine Co		150,000	1	150,000	70,000	1				First year	
The Rosenstock Pub. Co	1908	75,000	10	7,500	6,000	10					No sellers.
*San Nicolas Iron Works		300,000	500	600	600	500					₱200 sellers.
San Mauricio Gold Mining Co	1908	4,000,000	200	20,000						First year	No sellers.
Tarlac Railway Co	1906	150,000	100	1,500	1,500	100		₱9,674.75	June 30, 1908.		No sellers.
Union Hemp Machine Co	1909	50,000	10	5,000	2,600	10					No sellers.

* John T. Macleod's share list.

PHILIPPINE BONDS

	Dated	Authorized	Issued	Outstanding	Par Value	Rate of Int.	When payable	Last Quotation
Philippine Friar Land Bonds	Feb. 1st, 1904	$7,000,000	$7,000,000	$7,006,000	$ 100	4%	Feb. 1, 1914	104⅜
Public Works and Permanent Improvement Bonds	March 1, 1905	$5,000,000	$2,500,000	$2,500,000	$ 100	4%	March 1 1915	104⅜
Do.	Feb. 1, 1906		$1,000,000	$1,000,000	$ 100	4%	Feb. 1, 1916	104⅜
Manila Sewer and Water Works Improvement Bonds	June 1, 1905	$4,000,000	$1,000,000	$1,000,000	$ 100	4%	June 1, 1915	104⅛
Do.	Jan. 2, 1907		$2.000.000	$2.000,000	$ 100	4%	Jan. 2, 1917	104⅜
*Philippine Railway First Mortgage Four per cent Thirty Year Sinking Fund Gold Bonds	July 1, 1907	$15,000,000	$5,736,000	$5,736,000	$1000	4%	July 1, 1937	97

*Payment of interest guaranteed until maturity or redemption by the Philippine Government.

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- Ynchausti & Co.

ARTIFICIAL STONE
- Ilbert & Co.

ASBESTOS GOODS
- C. E. Helvie
- Shanghai Electric & Asbestos Co., Ltd.

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- Deutsch-Asiatische
- Hongkong and Shanghai Banking Corp.
- International Banking Corp.
- Banco Español Filipino

BAROMETERS
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BOILER MAKERS
- Vulcano Metal Works
- Nicolas, Tsu
- San Nicolas Iron Works

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- David W. Bell
- General Electric Co.
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- Anglo-German Brewing Co.
- San Miguel Brewery

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- Atlantic, Gulf and Pacific Co
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- Riley, Hargreaves & Co., Ltd.

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- C. S. Nicholson

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- Malthoid Paraffine Paint Co.
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- C. E. Helvie
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- W. T Henley's Telegraph Works Co., Ltd.
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- Anderson & Co., W. H.
- Chee Hsin Cement Co., Ltd.
- Chinese Engineering and Mining Co., Ltd.
- Green Island Cement Co., Ltd.
- Racine, Ackermann & Co.

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- Germinal Cigar Factory
- Olsen & Co., Walter E.

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- South Manchuria Railway Co.
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- Atlantic, Gulf & Pacific Co.

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- White, & Co. Inc., J. G.
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- White & Co. Inc. J. G.

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Supplement of THE FAR EASTERN REVIEW
May, Nineteen Hundred and Nine

The Hon. W. Cameron Forbes,
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